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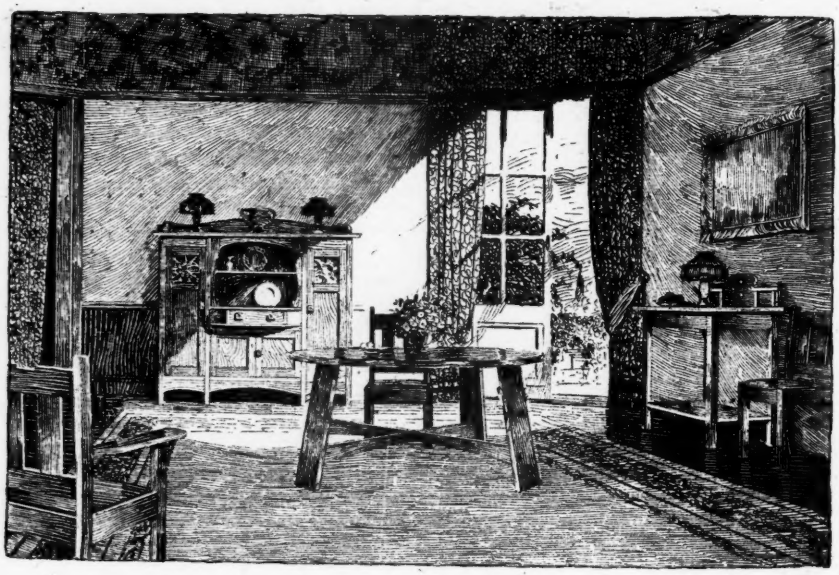

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THE MEDICAL JOURNAL OF AUSTRALIA.

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DISCURSIVE REMARKS ON DISEASES OF THE LUNGS IN THE AUSTRALIAN IMPERIAL FORCE (EGYPT).[1]

By F. Guy Griffiths, M.D.,

Honorary Physician, Royal North Shore Hospital of Sydney.

From the time that our infantry embarked for France in 1916 the Australian Imperial Force (Egypt), as that portion of the Australian armies operating in North-East Africa, Sinai, Palestine and afterwards in Syria came to be known, constituted about 10% only of the whole Australian Imperial Force and in comparison with the much larger portion operating in France attracted but little attention.

Yet our men on this very important front, the front which, according to some authorities, saw the crisis of the war, performed noteworthy deeds and suffered such hardships as few troops have successfully endured. Not only were the battle casualties numerous, but the inevitable morbidity and mortality were shocking. We occupied a notoriously unhealthy region and mingled perforce with disgustingly insanitary people. Elaborate precautions were instituted for the prevention of disease and where circumstances permitted their full exercise, success crowned the effort; but where lack of fuel, of water and of ordinary conveniences co-operated with enemy action to hinder our prophylactic measures, we paid a heavy toll to infectious disease.

Climbing from the dusty and stifling floor of the Jordan Valley, 300 metres below sea-level, to the storm-swept mountains of Moab, 1,000 metres above, our troops suffered terribly; so, too, when marching 700 kilometres (430 miles) in eleven days, from the burning sands of the Palestine coast to the snow-filled passes of the Antilebanon Ranges, north of Damascus—and through all this riddled with virulent malaria!

In these circumstances it will readily be seen how greatly the characters of disease varied from place to place and from time to time, so that one observer's experience may have been quite different from another's, almost as if they were in different theatres of war. The physician's case in this respect resembled that of the surgeon who, even as regards wounds of one part of the body, might hold entirely different views, according as he treated his patients at a regimental aid post, a field ambulance, a casualty clearing station or a base hospital, the class of patients varying in each situation.

Serving as I did for eighteen months under canvas in the Second Australian Stationary Hospital on the Palestine lines of communication and following our victorious troops into Syria only after the capitulation of the enemy, I saw nothing of the incidence of disease in the actual front line, but I had an excellent opportunity to see the class of patients who came down the line or who fell ill in camp on the desert.

The importance of disease of the lungs in armies is indicated by the statement that of twenty-one *post mortem* examinations which I made in the field, in nine death was due directly to pneumonia and in three others pneumonia played an important part. This is the more striking when I add that of the nine other cases three were due to violence and three to drowning, so that three only of the twenty-one were due to disease elsewhere than in the lung. The cases were not selected in any way.

Such mortal pneumonia was usually a broncho-pneumonia, secondary to one or other of the innumerable infectious fevers which scourged us; it was commonest in measles, malaria, traumatic sepsis and influenza. Further reference is made to it in the paragraphs on influenza.

Besides broncho-pneumonia complicating other illnesses, we saw very severe lobar pneumonia. In one case the patient was violently delirious from the onset, so as to compel a provisional diagnosis of meningitis, but the fluid withdrawn on lumbar puncture was normal and the progress of the disease made its nature quite clear. What more often gave rise to initial difficulty in diagnosis was the similarity of the clinical charts in typhus and in relapsing fever to that of pneumonia. There was the same sudden onset, the same continuous high fever, the same very rapid respiration and the same frequent pulse. Typhus was distinguished by the absence of basal consolidation and later by the eruption of the exanthem and relapsing fever by the finding of spirilla in the blood and by the relapse after the crisis. Malaria, too, often resembled pneumonia; indeed, it was not uncommon for pneumonia to complicate malaria.

One patient who recovered from a severe attack of pneumonia, had a considerable thoracic kyphosis, presumably the result of old caries. I tried hard to have him invalided to Australia, but the Medical Board, under orders to keep at the front every man who could do any work, would not agree.

This patient, like many an other, owed his recovery to the devoted nursing of the orderlies—we had no sisters on the staff of No. 2 Australian Stationary Hospital. The success with which men of all stations in life were converted into nurses, was the admiration of the medical officers and their good work in caring for patients earned our affection and gratitude.

Another pleasing experience was the tender solicitude of the healthy or convalescent soldier for his sick comrades.

The following remarkable case of relapsing pneumonia illustrates how a patient with unexpected reserve may recover from an apparently hopeless illness.

3569: Tpr. A.W., was admitted to the No. 14 Australian General Hospital on May 8, 1919, with a history of sudden onset two or three days before of fever and pain in the chest. He was prostrated, dusky, flushed, dyspnœic; the temperature was 40° C., the pulse-rate 126 and the respiration 32. The tongue was brown and dry. Early pneumonic signs were present at the left base. He had a slight leucocytosis, but no parasites were found in his blood. There was no expectoration. Two days later he had two or three

[1] Read at a Meeting of the New South Wales Branch of the British Medical Association on May 28, 1920.

cubic centimetres of bright scarlet muco-purulent sputum and consolidation at the left base, with exquisite tubular breathing and whispering pectoriloquy. There was bronchial breathing at the angle of the right scapula. His dyspnœa and distress increased and on the 14th he had a violent paroxysm of abdominal pain, relieved by the passage of flatus after foments and massage. The sputum was still scanty and blood-stained. No tubercle bacilli nor pneumococci could be found, but there were a few small bacilli resembling *B. influenzæ*. He then did better and on the 18th his temperature had been normal for three days. On the 19th he was suddenly much worse; there was a distressing cough, the temperature was 39.5°, the pulse-rate was 90 and the respiration 60. He had severe pain in the right loin and groin; his abdomen was tense, but not tumid nor dull. There was again tubular breathing, with whispering pectoriloquy at the left base; his heart was dilated. His exhaustion, cyanosis and dyspnœa were extreme. The respiration was sometimes over 70 per minute, once 76. Dissolution seemed imminent. He had not been able to lie down for twelve days, but he never lost courage. Some clear, straw-coloured serum containing a few leucocytes and red blood cells was withdrawn on exploration of the left chest, but no bacteria were found in it and none grew in broth or on nutrient agar. Two days later the chest was explored again, but no fluid was found. He was now so desperately ill that the two special nurses who relieved one another in attending him, always expected that they would find him dead on returning to duty. He had incontinence of urine, which contained pus, epithelial cells and albumin. His apex beat was 2 cm. external to the nipple line. The sputum was as before. He then improved a little, but on June 7 he had severe pain in the right side of the chest, right loin and abdomen down to the right groin and to the inner side of the right thigh without discoverable cause. On the 10th he had severe pain in the right calf, but was much less dusky and could now for the first time lie down in bed. On the 15th there appeared œdema of the right foot. The incontinence diminished, but there were still pus and red blood cells in the urine. By the 21st his tongue was clean and the signs at the left base had almost disappeared. Thereafter his progress was not interrupted. Early in July he was examined with X-rays and shadows indicating an old, thick-walled cavity in the lower lobe of the right lung were found. Nothing to account for this was obtainable in his past history. The lesions in the left lung gradually resolved.

Two months later he was still better, but a short walk caused considerable œdema of the right foot and a little of the ankle and leg; the cause of this is not clear.

He expressed himself fortunate to have escaped alive.

Following my usual practice, I refrained from prescribing any alcoholic beverage for this patient. The more experience I have, the more convinced I am that if alcohol be needed, it is wise to give it as alcohol (rectified spirits of wine, spirits of ether, or spirits of ammonia) and not to order whisky or brandy, which can scarcely be more valuable and which have so many disadvantages. His happy recovery from an appalling illness confirms my opinion.

Where pneumonia was so common a complication of the numerous infectious diseases, it was natural that bronchitis was still more common. It occurred in measles, rubella, mumps, scarlet fever, diphtheria, malaria, erysipelas, phlebotomus fever, typhoid, typhus, phthisis and variola and, of course, in ordinary coryza and in influenza.

In typhoid it was rare, because there was so little typhoid. One of the great successes of the Army Medical Corps during the war was the control of typhoid fever. On Gallipoli paratyphoid A and B had been not uncommon, but subsequently all troops were inoculated about once in six months against these, as well as against typhoid, and all three became exceedingly rare. I can remember only two cases in my two years' service.

It has been freely asserted that medical officers refrained from diagnosing typhoid, in an attempt to vaunt the value of inoculation. In my experience, there was nothing of the kind. On the contrary, medical officers, accustomed to see much enteric in civil life, were ready to diagnose it and it was a not uncommon provisional diagnosis; it was seldom confirmed.

Bronchitis occurred also apart from other diseases, especially in patients who had had frequent previous attacks.

Sometimes patients with a bronchitis which would have been comparatively mild under other circumstances, became seriously ill through the exhaustion of carrying on despite their illness. Thus, one medical officer, who was at length compelled to take to bed, slept so soundly for twenty-two hours in the first twenty-four that I visited him on five different occasions before I had an opportunity to make an examination. I let him sleep, convinced that a good rest would do more for him than could drugs.

I never recognized a case of spirochætal bronchitis.

Of pulmonary tuberculosis I saw several varieties, but yet no great number of cases. It was surprising that there were not more. In the early stage the disease is often unrecognizable by ordinary methods and accordingly some, but remarkably few, men were so enlisted and went on to manifest the developed disease, parading to the medical officer in every stage up to the severest.

When the disease was still comparatively early, there being no tubercle bacilli in the sputum and the symptoms subsiding, the patient was discharged to duty; this was necessary, as men were so badly needed.

Even patients with more advanced disease often had to carry on, though they might be fit only for "B class" work. There were, of course, numbers of men with some degree of chronic fibrosis of the lung, presumably tubercular, who did splendid work and sustained at least some of the hardships of the campaign without serious detriment to themselves or to their comrades, provided they exercised what care they could. Indeed, three old patients of mine, to whose enlistment I would not have agreed, were killed in action without their illness having been suspected; and many others served, including several medical officers whom I have met in comparatively good health since my return to Australia. I know of one or two other medical officers who broke down, but they were men with old cavities, who would not have been accepted by the authorities if physically fitter men had volunteered in sufficient numbers. Happily, they have made good progress since their repatriation.

Unfortunately, some few consumptives became so ill that recovery was beyond human powers. When it could be arranged, they were isolated in hospital; but opportunities to return them to Australia occurred only at rare intervals and some remained in hospital in the dust and heat of Egypt, growing progressively weaker for five, six or even seven months. Some died there.

The gravest case of tuberculosis I saw was one of

general miliary disease in a middle-aged New Zealand recruit. His illness was diagnosed at first as typhoid, but as his fever and emaciation increased without clinical or bacteriological evidence of typhoid or of malignant endocarditis, general miliary tuberculosis was diagnosed during life, despite the failure to find tubercle bacilli in his scanty sputum and confirmed at the *post mortem* examination, of which the following are the notes:—

46795: Tpr. W.A.S.—*Post mortem* examination, January 5, 1918. Very thin body; strong *rigor mortis;* brain not examined; heart, small, not otherwise abnormal. Pleural cavities, no effusion.

Right lung: Almost completely surrounded by moderately dense adhesions, fibrous tubercle along the posterior part of the upper lobe, miliary tubercles scattered over the upper lobe, especially in the fissure between the upper and middle lobes and here and there aggregated; some tubercles in the substance of the upper lobe, a few on the pleura of the middle lobe and one or two on the pleura of the lower lobe.

Left lung: Free, scarred at cupola, one miliary tubercle.

Both lungs were small, the right deeply congested, almost airless; so also the left, but to a less extent; no cavity found in either.

A few tubercles were found on the surface of the liver, especially near the gall bladder; in one place a beautiful cluster of clear, pearly granules; there were some also in the falciform ligament and again, too, on the surface of the spleen, but none in the kidneys nor on the peritoneum of the hollow viscera.

It has often been stated that it was more difficult to find tubercle bacilli in the sputum in Egypt than elsewhere and, indeed, in several cases of chronic broncho-pneumonia almost certainly tuberculous we failed, but perhaps not more often than is the case in ulcerative phthisis in Australia.

I always refused to label a patient "tuberculosis" unless the diagnosis was assured. Other medical officers were sometimes pleased to find this amusing, but the outcome of cases like the following gave them cause to think:—

489: Sgt. T.G.W., came under my care on July 7, 1919. He lay in bed exhausted, thin, haggard and pale, but at ease. His recorded history was one of frequent coughs and colds and slight loss of flesh and strength for six months and recently of regular moning cough, till on May 24 he coughed up blood and since had had high fever, sweats, wasting, cough, purulent expectoration and frequently recurring hæmoptyses, the last on July 1. He had pain in his right subaxilla and fluid at his right base with a friction rub above it; evening fever to 38° or 39.5° C..

His sputum had been examined four or five times, but no tubercle bacilli had been found.

On cross-examining him with regard to his past symptoms, I learnt that before his hæmoptysis on May 24 he had been seized early in the morning with a sudden fit of coughing and had brought up through his nose and mouth half a cup of "fluid like water with a very little milk mixed and tasting like pus from an abscess of the mouth"; that he had once spat up "some stuff like tissue, white, like boiled egg"; that he had often seen hydatids in rabbits, that the fluid he spat up was like it, but the tissue was white, not like the clear transparent cyst wall of a hydatid in the flesh of a rabbit; that he had known hydatids in men and now remembered that he was supposed himself to have suffered from hydatid of the lung in Egypt in 1916, when he had coughed up stuff like skin, but after X-ray examination was discharged to duty and had thereafter enjoyed robust health for 2½ years.

On careful microscopic search I found some minute fragments of laminated hydatid membrane and three or four hooklets in his sputum.

I waited till the fever ceased and then tested him with old tuberculin, 0.001, 0.005 and 0.01 c.cm., at intervals of two or three days; there was no sign whatsoever of any reaction, no soreness at the site of injection, no fever, malaise nor other general symptom and no increase of signs or symptoms in the lung. This was the more striking, as three patients with surgical tuberculosis all reacted to the first dose (0.001 c.cm.) of the same preparation.

There was no opportunity for an X-ray examination, but the nature of the illness is obvious. At the end of August, 1919, he was disembarked in Australia in moderately good health.

Gassing was almost unknown in Palestine; the only sufferers I saw were in the late stage, having been poisoned some months previously in France. They exhibited chronic bronchitis, pulmonary fibrosis, often suggestive of phthisis, and especially neurasthenia and tachycardia.

Among curiosities casually observed, I would like to mention that the loudest friction rub I ever heard was in a patient with ankylosis of the lumbar vertebræ and evening fever to 38° or 39° C.; the spinal lesion suggested *arthritis deformans,* but the fever and pleurisy inclined me to diagnose tubercular caries. This man worked hard in the Australian Remount Depôt until a few days before he was invalided for Australia. May I add that the fine work of the Australian Remount Depôt has not been duly appreciated. I saw scores of members of this unit and nearly all were unfitted for combatant duties, either by age or by serious physical disability. The majority had been rejected for general service. How some carried on for three and four years in the distressing conditions in which they worked so laboriously, I do not understand. One or two were actually over seventy years of age.

An unusual cause for coughs was the intravenous injection of tartar emetic, exploited for the treatment of recurring malaria or of bilharziosis. This cough was clanging and teasing.

It was the rule to invalid to Australia patients recovered from empyema, but several who bore scars of operations for this disease, performed their ordinary military duties with efficiency. It was pleasing, too, to see how fit eventually became some men with wounds of the thorax, even though they had been very seriously ill for many months and in some cases still carried bullets or pieces of high explosive shell embedded in the root of the lung.

As usual, distressing dyspnœa in walking patients was ordinarily of cardiac and not of pulmonary origin. It was particularly severe in cases of effort syndrome or "D.A.H." as cardiac neurasthenia is called in the Army.

Perhaps the most urgent dyspnœa I have ever seen was that of the patient whose case has been already described as relapsing pneumonia.

Two other curiosities that may be mentioned are: (*i.*) a suspected pulmonary hæmoptysis found to be due to secondary hæmorrhage after incision of a peritonsillar abscess and (*ii.*) a concurrence of coryza and hæmatemesis, so strongly suggesting hæmoptysis as to lead an experienced nursing sister to doubt the diagnosis of gastric ulcer, previously well established.

The Army, like the civil population, felt the epidemic of influenza. With us it occurred in waves, the first reaching Alexandria in July, 1918. This was comparatively mild, but later waves, especially in December, 1918, and January and February, 1919, were severe, sweeping off the native population in their thousands.

Even so, they attracted comparatively little attention, so accustomed had we become to epidemic disease of all kinds, not only mumps, measles, rubella, scarlet fever, diphtheria, but also cerebro-spinal meningitis, relapsing fever, phlebotomus fever, Mediterranean fever, amœbiasis, bacillary dysentery, malaria and even cholera, plague, typhus and variola.

The sufferings of influenza patients in dust storms under canvas can scarcely be imagined by those who have not witnessed them. One fearful storm, which lasted for five days, in February, 1919, blowing all the time like a cold westerly at its worst in Sydney, swept off numbers of patients manifesting the pneumonic form.

Attempts to isolate the influenza bacillus were rarely successful. We usually found a strepto-diplococcus, the *Micrococcus catarrhalis* and the pneumobacillus.

It was often impossible during the first day or two of illness to distinguish between malaria and influenza. There was the same sudden onset, with rigor, malaise, prostration and bronchitis; nor did a leucocyte count help. In fact, when one failed to find the malarial parasite, the blood picture was very similar in the two diseases. Even when pneumonia supervened, as it so often did, on influenza, there was sometimes no leucocytosis.

In one broncho-pneumonic case the onset of the disease was so sudden, with pain, intense dyspnœa, cyanosis, copious bloody fluid sputum, prostration and death within forty-eight hours that pneumonic plague was suspected, but at the *post mortem* examination only pneumococci and a large saprophyte were found.

The two following cases offer points of interest:—

64848: Tpr. J.E.R.; age 21; five months' service; a moderately severe attack of influenza, with severe pain in the forehead, relieved by discharge of pus from the nose, then moderately severe lobular pneumonia and sudden death. At the *post mortem* examination on December 4, 1918, there were found extensive double basal broncho-pneumonia, muco-pus in the left maxillary antrum, pus in both frontal sinuses, in the sphenoidal sinus and in the left middle ear, all containing streptococci. There was slight diffuse staphylococcal cortical lepto-meningitis, adhesion of the tip of the left frontal lobe of the brain to the posterior wall of the left frontal sinus leading back to a necrotic abscess containing about 50 c.cm. of pus in the left frontal lobe and thence to a widely dilated left ventricle. Influenza bacilli, pneumococci, streptococci and staphylococci were found in smears from the cerebral abscess. During life there was an almost complete absence of symptoms pointing to any serious intracranial disease.

3675: Tpr. D.H.H., age 43, 18 months' service, was admitted on January 15, 1919, after three or four days' illness, with shivering, vomiting, headache, cough and pain in the left subaxilla. There was no history of malaria. No parasites were found in the blood; a leucopenia was present. Two days later intense double broncho-pneumonia set in, but no localizing pain and no blood in sputum. Next day there was delirium, with a dry, cracked, coated tongue and very little sputum. There was albuminuria, with granular and hyaline casts. A leucocytosis (17,000 to 20,000) appeared and the patient made a magnificent fight against his terrible illness for three weeks, but unhappily eventually succumbed.

Post mortem examination on February 5, 1919: A slight body, but much subcutaneous fat, about 2.5 cm. thick in the middle line of the abdominal wall. Abdomen: Spleen not swollen; one clear yellow granule on the surface, 0.2 to 0.3 mm. in size. No tubercle bacilli were found in it. No malarial parasites were found in the smears of the splenic blood. No changes were discovered in the other viscera. Thorax: The heart was soft, flabby and fatty; there was no other appreciable disease. The pleural cavity contained little, if any, excess of fluid, a few recent, semi-purulent, frail adhesions. In the right lung there was extensive broncho-pneumonia, especially in the inferior and posterior regions; pink, granular nodules, 1 to 2 mm. in diameter, were seen in the substance of the lung to the number of many hundreds and a dozen or two beneath the pleura, especially near the base. These nodules were not clear, not yellow, not grey, not pearly, not glistening. In one part of the upper lobe the sub-pleural tissue was more or less homogeneous, pearly grey and yellow and there was some slight bronchiectasis. In the left lung there was similar, but more extensive, disease.

No old tubercular focus was found in the lungs or in the bronchial glands; no tubercle bacilli were discovered in the pleural exudate, nor in the crushed nodules. Pneumococci were present in large numbers. No grey tubercles were found anywhere. Agar cultures of the pulmonary exudate gave pneumococci, coliform bacilli and staphylococci. On subsequent examination no giant cells and no tubercle bacilli were found in sections of the lungs and kidneys.

I am indebted to Colonel W. L. Kirkwood, O.B.E., the Commanding Officer of the Second Australian Stationary Hospital and afterwards of the Fourteenth Australian General Hospital for his kind permission to use the clinical material on which I have drawn for these notes.

Such, gentlemen, is a rambling commentary on some aspects of pulmonary disease as it affected our troops on the Palestine front. I have attempted a rough sketch of the conditions in which our brave men fell ill and recovered or died. If I have succeeded in presenting to you a picture of their sufferings in and out of hospital, I have achieved something. As a medical officer I endured few of their hardships, but I saw enough to make me prouder than ever of Australians and to make me thankful that I shared some of their joys and sorrows and played a small part in the service of that glorious band of heroes, so dashing in attack, so resolute in misfortune, so tenacious in defence, so uncomplaining in ill-health and discomfort, who fought and, alas, too often died, to preserve you and me, yours and mine, from the brutal dominion of the foul Hun.

A STUDY OF SKIN SENSITIVITY TO KOCH'S OLD TUBERCULIN UNDER DISPENSARY CONDITIONS.[1]

By **Donald Luker, M.B., Ch.M. (Syd. Univ.),**
Honorary Physician, Anti-Tuberculosis Dispensary, Sydney.

Numerous are the methods of physical diagnosis of clinical tuberculosis elaborated by virtuosas in the special methods they have become masters of, all of them time consuming, often requiring special aptitude in the investigation of physical signs besides requiring the most favouring conditions in the mood of the investigator and extreme quietness of the surroundings. As such pre-requisities are not to be found in the *milieu* of a busy out-patient department, any method which will lead to a rapid sifting and classification of new cases presenting themselves for diagnosis must commend itself to the dispensary physician. Although no one would ever be content

[1] Read at a Meeting of the New South Wales Branch of the British Medical Association on May 28, 1920.

with any diagnosis depending solely on the evidence of any tuberculin test, yet, I believe, a preliminary examination of the patient's skin sensitivity to tuberculin to be of the greatest value in deciding the necessity or otherwise of a laborious investigation of confirmatory physical signs, as well as of bacteriological, serological, cytological, chemical, fluoroscopic and radioscopic findings.

Koch's original hypodermic test, because of its valuable focalizing action on the site of the disease, has never been displaced as the test *par excellence*. The necessity, however, of a series of accurate rectal temperature observations, the control of the activities of the patient for some days, besides its inapplicability to feverish conditions, together with the very real danger of excessive focal reactions with consequent dangerous mobilization of the bacilli, all tend to limit its indiscriminate application in ambulatory cases.

On the other hand, the universality of infection by tubercle bacilli in infecting (with negligible exceptions) every individual of a civilized community, while clinically affecting comparatively few, restricts the usefulness of von Pirquet's test to early childhood. The extreme delicacy of this latter test, provided the technique originally planned by the author be followed, disclosing as it does past infection as well as present affection, is its greatest drawback; for, excepting the ambiguous data derivable from the rapidity of reaction and characters of the inflammatory papule, the observer is not informed as to whether the bacilli which at some previous time have gained entrance into the individual, are a negligible quantity, or whether their activities are a present peril to the well-being of the invaded host.

People living in city communities, with extremely few exceptions, become early infected with tubercle bacilli often at the cradle age. Successive small bacillary attacks confer an increasing immunity to the germ and provided the individual does not early have to deal with overwhelming massive attacks, the final result is salutary rather than otherwise. A. E. Gow in the *Quarterly Journal of Medicine* (1919-20), says:—

> The acquired immunity that comes with the advance of years is mainly due, if not to some previous attack, to gradual immunization from repeated exposures to infection which may or may not have given rise to clinical manifestations sufficiently definite to attract notice.

Clinical manifestations of active tuberculosis are to be regarded as evidence that this acquired immunity has fallen below a certain safety level. As our interests are centred in these latter cases, a test, to be of value, must give data, not so much as to past infection, but as to the present state of the immunity level. It must tell us how far the infecting bacilli are responsible for present morbid conditions. In other words clinical activity is the resultant of the fluctuation of the immunity level; symptoms are but evidence of failure of acquired immunity resistance.

All tuberculins consist of a number of indeterminate chemical compounds allied in their nature to the proteins. The tuberculin reaction (like Schick's diphtheria toxin reaction, Noguchi's luetin reaction for syphilis and the typhoidin reaction of Chantemesse and Gay) is but a special instance of the law of sensitization by protein and protein allies, *viz.*, the introduction into the tissues of an animal of an antigen results in the defence production in that animal of specific antibodies of the nature of ferments or amboceptors for the destruction of any very closely similar antigen subsequently gaining entrance. This chemical enzymotic proteolysis is an emergency mechanism for ridding the tissues of foreign dissolved protein (2).

Limited and perplexing are the theories of the manner in which antibodies act. Speculations are rife and numerous fancies have been learnedly constructed scientifically to harmonize this phenomenon. Among the most illuminating of these is that of Wolff-Eisner (5). He regards the antibody as a tuberculo-lysin. This lytic body, as in all protein sensitization, splits the tuberculin into a toxic and non-toxic molecule. The poisonous fraction, if favoured by conditions of abundant amboceptors and complement, is further disintegrated into the innocuous end-products of complete protein digestion. Should these favouring conditions of complete protein digestion not be present, the toxic molecule causes a chemiotaxis, a leucocytosis and all the familiar degrees of inflammation from hyperæmia to exudation and granuloma formation. This inflammatory reaction is to be regarded as the manifestation of pathological tissue changes, the result of an attempt to deal with incompletely lysinized tuberculin (9). In the presence of deficiency of lytic body the tuberculin is not completely lysinized and more leucocytes and a greater tissue reaction are necessary to a more complete reduction than in the presence of a greater abundance of lytic body where less reaction with fewer leucocytes are required to remove the offending split products of tuberculin.

The lytic bodies formed in response to an antigen were at first thought to be operative only in the circulating tissues, blood and lymph, but von Pirquet by his discovery in 1907 of the general hypersusceptibility of tuberculin for fixed tissue cells, displaced the previously held view and demonstrated that besides the labile circulating amboceptors of the blood and lymph, the fixed tissue cells were in an equal or greater degree provided with sessile attached amboceptors incorporated in reacting tissue cells. This discovery was the basis of von Pirquet's special test for unmasking the sessile lytic bodies in the extremely sensitive lymph layer of the epidermis. The presence of tuberculo-lytic body has been proved to be indubitable evidence that the tissues responding have been at some time previously exposed to the action of tubercule bacilli or of their products.

Every individual who has at any time been the victim of a bacillary attack, records the infection by unmasked sessile epidermal antibody when subjected to von Pirquet's test. The only exceptions to this rule are either moribund patients in whom vitality is so depressed that no kind of immunity response is possible (reaction paralysis) or in such cases in which there is such a flooding of the tissues with autotoxin (toxic surcharge) that little or no lytic body remains to split the introduced tuberculin. This

latter condition is seen in generalized tuberculosis and temporarily in a lesser degree (1), (2), (3), (6), (7), in measles, scarlet fever, small-pox, cholera, typhoid and in pneumonic influenza. This anergy or failure to react allergically (von Pirquet) is seen according to (4) Bloomfield and Mateer, when reactivity to tuberculin is depressed or inhibited as a result of the defence powers of the organism being already pre-occupied in actively dealing with other toxins or antigens.

With the exceptions noted, *viz.*, reaction paralysis, or serious toxic surcharge, failure to obtain a reaction in a von Pirquet's test is due not so much to the shortcomings of this or that brand or manufacture of tuberculin, but to the non-adherence to that strict technique to which the author of the test attached so much importance, *viz.*, not using his special chisel-blade scarifier, not abrading the epidermis sufficiently to expose the sensitive lymph layer to the antigen, or by too deep penetration into the vascular layer vitiating the test by causing the tuberculin to be taken up by the dermal capillaries and to be swept into the general circulation away from the skin site under investigation. According to the assumption of Wolff-Eisner, if there be enough sessile lytic body at the site to digest the introduced tuberculin completely, no toxic molecule is left over to provoke inflammatory reaction. To find the threshold of reaction, *i.e.*, the minimum amount of tuberculin which, placed in contact with the sessile reaction amboceptors of the *locus*, will excite an inflammatory reaction, is the aim of all quantitative cuti-reaction tests.

Of these tests Ellis's "M.P.C." (multiple papillary cutaneous) is the most popular.

His method is as follows: Along the skin of the flexor aspect of the alcohol-cleansed forearm, Ellis places a series of drops of tuberculin dilutions 2.5 cm. apart. His solutions arranged in order along the arm from below upwards are: Normal saline solution, old tuberculin 1 in 100 thousand, 1 in ten thousand, 1 in one thousand, 1 in one hundred and 1 in ten. He estimates skin sensitivity by the highest dilution which produces a reaction when abraded into the papillary layer of the skin by boring through these dilutions with a von Pirquet scarifier.

The difficulties of accurate and reliable thermometric observations and the absence of necessary personal control of the dispensary patient have caused me for some years to make a preliminary estimation of skin sensitivity in the vast majority of individuals applying for diagnosis and treatment of supposed tuberculosis. Influenced by the proved utility of Schick's diphtheria toxin test, the luetin test of Noguchi for syphilis, the typhoidin test of Gay and by a personal use of protein sensitivity tests in infantile marasmus, I have for the last two years adopted a modification of a method I first saw suggested by Dr. Solis Cohen, of New York, in the diagnosis of tuberculosis, *viz.*, the method of introducing intradermally controlled infinitesimal doses of tuberculin for a sifting diagnosis of cases clinically affected, and to obtain " a lead" in the estimation of the very difficult optimum dose of tuberculin with which to commence treatment.

The technique is of such paramount importance to the success of the test that a detailed account of the method practised by me is necessary:—

A series of decimal dilutions from 1 in 10 of old tuberculin in normal saline solution to 1 in one million is quickly and easily made by a modern graduated tuberculin syringe (Parke, Davis & Company). The solutions are numbered as under:—

Solution 1—One of old tuberculin with 9 of normal saline.
Solution 2—One of old tuberculin with 99 of normal saline.
Solution 3—One of old tuberculin with 999 of normal saline.
Solution 4—One of old tuberculin with 9999 of normal saline.
Solution 5—One of old tuberculin with 99999 of normal saline.
Solution 6—One of old tuberculin with 999999 of normal saline.

0.1 c.cm. of any of these solutions will respectively be:—

Of Solution 1: 0.01 c.cm. of old tuberculin, *i.e.*, one hundredth.
Of Solution 2: 0.001 c.cm. of old tuberculin, *i.e.*, one thousandth.
Of Solution 3: 0.0001 c.cm. of old tuberculin, *i.e.*, one ten thousandth.
Of Solution 4: 0.00001 c.cm. of old tuberculin, *i.e.*, one hundred thousandth.
Of Solution 5: 0.000001 c.cm. of old tuberculin, *i.e.*, one millionth.
Of Solution 6: 0.0000001 c.cm. of old tuberculin, one ten millionth.
Of Solution 7: Norman saline solution.

I usually aim at injecting half of the above, *viz.*, 0.05 c.cm.. The needles used are Parke, Davis's steel tuberculin which, if necessary, are ground down slightly, so that the needle opening will be covered while the point, when inserted, is no deeper than the epidermal layer; for if the needle opening be too long, some of the solution may escape on to the surface of the skin instead of reaching the lymph layer. Inserting the needle almost parallel to the surface, the point is pushed not deeper than the lowest layer of the epidermis. From the tuberculin syringe about 0.05 c.cm. of solution No. 6 is forced into the epidermis, *i.e.*, a dose of less than 0.0000001 c.cm. of old tuberculin. In a line 2.5 cm. above this injection 0.05 of the next solution (No. 5) is inserted, *i.e.*, less than 0.000001 c.cm. of old tuberculin; above that similarly solution 4 (less than 0.00001 c.cm.) and above that solution 3 (less than 0.0001 c.cm.).

A white wheal the size and shape of a small split wheat grain heralds a successful intradermal injection. If, as rarely happens, no wheal results, the lymph layer of the dermis has probably been passed and the injected tuberculin has been swept into the general circulation away from the special site being tested. Another attempt should then be made at the same level, but about 2.5 cm. away from the previous failure. The punctures are covered for a few hours with a strip of adhesive plaster, the surface of which has been flamed over a spirit lamp. At the end of 48 hours, when the non-specific irritative reactions will have subsided, the arm is inspected in a good

daylight and the skin sensitivity read off in terms of the highest dilution, *i.e.*, the smallest dose of tuberculin producing the slightest reaction beyond that which can be attributed to mere trauma. Gay (8) for his typhoidin reaction suggests a definite indurated papule surrounded by an areola of at least five millimetres as a standard, which I shall in future adopt in tuberculin cuti-reaction tests. In a series of punctures in a successful test in a susceptible patient the gradation of increase in the inflammatory reaction roughly proportional to the dose of tuberculin introduced is noteworthy.

Of one hundred consecutive patients applying for diagnosis at the Anti-Tuberculosis Dispensary, tested by this intracutaneous method, 56 reacted to less than one ten thousandth of a cubic centimetre (0.0001 c.cm.) of Koch's old tuberculin (Burroughs, Wellcome & Company).

Of 100 cases 56% reacted to less than one thousandth of a cubic centimetre:—

10% reacted to less than one ten millionth.
20% reacted to less than one millionth.
8% reacted to less than one hundred thousandth.
10% reacted to less than one ten thousandth.
6% reacted to less than one thousandth.

56%.

44% reacting only to doses of one thousandth and over of a cubic centimetre of old tuberculin:—

4% obviously very advanced pulmonary cases (toxic surcharge).
2% not very ill, but had hæmoptysis a few days previously.
2% hydatid of the lung; operated on.
1% aneurysm of the aorta.
2% previously had tuberculin treatment.
1% doubtful technique, with a few bacilli in sputum.
15% naso-pharyngeal catarrh.
10% chronic bronchitis, silicosis, bronchiectastis.
5% very old quiescent tubercular disease.

44%

Of the 56%, all were not tested by Koch's method, but 30% gave general reaction to over one hundred to one thousand times the skin reacting dose. In only about 20% was sputum produced for examination with positive reports from the Microbiologist of the Department of Public Health in about half.

Of the 56 reacting patients, those reacting to a millionth or less, usually showed more extensive physical signs and evidence of greater toxæmia than those reacting to one ten thousandth, but the exceptions to this as regards physical signs were so many as to render it doubtful in formulating any relation between amount of lung involvement and skin sensitivity.

Accepting the dictum of careful morbid anatomists that we are all harbourers of tubercle bacilli and that many of us, though reacting carriers, are quite healthy, it may be germane to this inquiry to try to indicate the doubtful boundaries of that elusive zone through which the healthy reacting carrier passes on his way to becoming the unhealthy tuberculous patient. What is the degree of constitutional depression or failure of acquired immunity resistance which will determine a relapse, a lighting up or any other term indicative of a temporary failure of the individual in the combat? With much diffidence from a study of my cases, I am inclined to place in this zone all cases reacting to less than 0.001 c.cm. of old tuberculin, while those reaction to less than 0 0001 c.cm. have passed beyond the realm of doubt and are suffering from the present activities of the bacillus.

The theories of immunization are now undergoing such fluctuations that explanations in this field cannot be final. But leaving theory on one side and taking stock of results, the conclusions to be drawn from this inquiry are clear, *viz.*, that (1) This is a reliable time-saving, tentative method of preliminary sifting cases into such classes as:—

(*a*) Clinically active.
(*b*) Doubtful.
(*c*) Quiescent.
(*d*) Non-tubercular.

(2) That though the test results of these carefully determined minimal effective doses furnish no reliable data as to the amount of lung involvement, yet it gives some criteria as to the toxæmia present.

(3) That it is a valuable guide in estimating the threshold of probable reactions to Koch's hypodermic test or the optimum commencing dose in tuberculin treatment.

(4) That in the routine examination of individuals presenting no obvious defects, as in army or navy recruits, proponents for life insurance, public service appointments, routine school children examination, an intradermal injection of one ten thousandth of a cubic centimetre of old tuberculin compared with a similar control of normal saline solution would serve as a quick, reliable way of differentiating candidates into clinically affected and doubtful classes.

The correct technique, a matter of supreme importance in the results, is at first a little irksome and difficult of satisfactory acquirement, but will well repay the trouble.

Erlandensen and Petersen working on similar lines with quantitive von Pirquet tests divide their cases into:—

(*a*) No reaction, *i.e.*, non-tubercular.
(*b*) Reacting to one thousandth of a cubic centimetre of old tuberculin (suspicious).
(*c*) Reacting to higher doses (actively tubercular).

My experience is that cases reacting only to one ten thousandth and more of a cubic centimetre of old tuberculin are either not actively tubercular, or, if they have been infected in the past, the tubercle bacilli in their tissues are not active participants in the present morbid conditions under investigation, of course, always excepting the very evident cases of toxic surcharge and of reaction paralysis.

In conclusion, I would apologize for the crude attempts I have made to assess morbid metabolic processes in terms of mathematics, but trust my contribution may not be without value in the exposition of such a singularly difficult problem as the bio-chemical

changes occurring in the tissues as the result of tubercle infection.

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Reports of Cases.

TWO UNUSUAL CASES OF BULLET WOUNDS.

By **Idris Morgan, M.B., Ch.M. (Syd.),**

Honorary Assistant Physician, Newcastle Hospital, New South Wales.

CASE I.—Sergeant D. E., Black Watch, Imperial Reservist, received a bullet wound during the battle of Loos on September 26, 1915. He states that he was struck in the region of the left hip joint and immediately became paralysed in both legs. He was unconscious for some time. He finally regained the British trenches, 36 hours later, by digging his bayonet into the ground and dragging himself along with it. He arrived in England eleven days later. His bowels had not been evacuated during that time. He had been catheterized at regular intervals. It was found that the bullet had injured the fifth lumbar vertebra. His right leg was still paralysed, but he was able to move the left leg freely.

After spending ten months in a military hospital in Manchester, he was able to walk on board a "carrier," bound for Cape Town. He was wearing a rubber receptacle to collect the urine, which continually dribbled from him. There was no sensation in his penis or urethra. The bowels had not acted without the aid of purgatives since his injury. He had no control of his anal sphincters and could not tell when fæces were being evacuated. This was his condition when he embarked.

After a couple of days at sea, he requested that he should be given an enema, as his bowels had not been evacuated for five days. The injection was given by an orderly. The fluid, instead of returning easily, as it usually did, was retained. The scrotum immediately became swollen and bleeding occurred from the rectum. He became very ill. The temperature rose to 40° C., the pulse became rapid and vomiting set in. Incisions were made in the scrotum and pus discharged. There was also a discharge of pus from the rectum. No anæsthetic was required as the scrotum and anal region were insensitive.

A large slough formed and much necrotic tissue was removed, including both the internal and external *sphincter ani* muscles. He was on the "dangerously ill" list for some time. The sloughing area healed slowly and he was able to walk ashore on arrival in Australia.

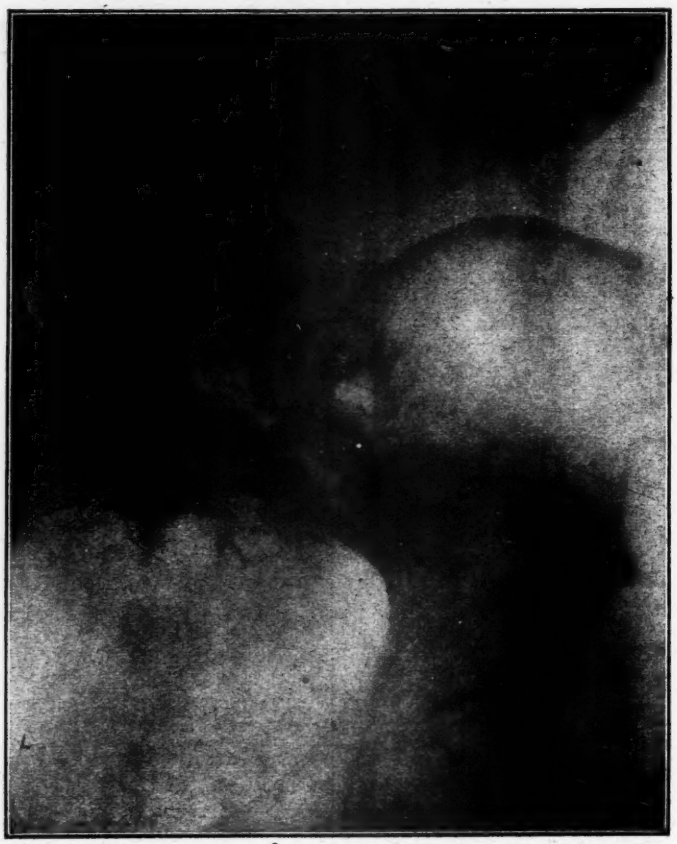

FIGURE I.

This man came to see me on May 11, 1920, four years and eight months after he was wounded. He brought with him a small piece of bone, which he had found on his napkin that morning. One surface was flat and cancellous. The other was curved and smooth, like an articular surface. The curve is the arc of a circle about 2.5 cm. in diameter. The flat side is quadrilateral and measures 18.5 mm. by 21.5 mm.. Portion of a circular depression appears at one edge of the fragment. I have formed the opinion, with which those of my colleagues to whom I have shown it have agreed, that it is a fragment of the head of the femur and the depression is a part of the pit for the insertion of the *ligamentum teres* of the hip joint.

On examination two cicatrices were found, obviously bullet wounds. The smaller cicatrix, which may be the wound of entrance, lies about 8.75 cm. above the posterior superior spine of the ilium on the left side and the larger, probably the wound of exit, is 10 cm. below the iliac crest and 7.5 cm. behind the great trochanter of the femur on the right side, with the patient in the erect position.

The anal canal is represented by a large pouch-like depression.

There is absolute anæsthesia over the skin areas supplied by the first to fourth sacral nerves on both sides.

The areas supplied by the fifth sacral nerve on the left side and the fifth sacral and first lumbar nerves on the right side are anæsthetic.

The right thigh is 5 cm. and the right leg 3.75 cm. less in circumference than the left.

He still wears a rubber bottle to collect his urine and a napkin to collect fæces. He takes 60 to 75 grm. magnesium sulphate on Saturday night on retiring and spends

Sunday indoors. The bowels then remain inactive till stimulated by the next weekly dose of purgative. He has light employment, which he performs without inconvenience. He is able to walk quite well, but occasionally suffers from what he terms "a locking" of the right hip joint.

The accompanying X-ray photographs, taken by Dr. E. J. Rowbotham, of Newcastle, show that the bullet could not have damaged the femur. They also show an indentation in the head of the femur corresponding to the fragment passed into the napkin.

We know therefore that the bullet did not damage the femur. There are no further cicatrices on the body. What caused the detachment of this fragment from the head of the femur and how did it reach the bowel?

The piece of bone itself is not a sequestrum, nor is there any evidence in the photographs of old or active necrosis of the head of the femur or acetabulum. This argues against a pelvic abscess with necrosis of the bony structures of the hip joint having been at the root of the trouble. The acetabulum and the head of the femur at present show no traces of old or active disease.

Sometimes there is a sero-purulent discharge on the napkin. I could find no evidence of a sinus on superficial examination.

The size and shape of the fragment, the X-ray appearance of the head of the femur and the patient's own statements, support the view that the piece of bone was not swallowed with the food.

Case II.—Private X., Australian Imperial Force, aged 19 years, was admitted to the wards of No. 2 Australian Auxiliary Hospital (Southall) in 1918 from a Royal Army Medical Corps hospital.

He was suffering from "amputation of the left leg below the knee and bullet wound of left hip joint." On examination it was found that he could move the left lower extremity freely and without pain. The small cicatrix of a bullet wound, which had healed without sepsis, was found a short distance (my notes do not state the exact distance) below the uppermost point of the left iliac crest. This was apparently the wound of entrance. No wound of exit could be found.

Figure II.

Captain T. Nisbet, radiographer to the hospital, reported: No bony lesions of the femur or pelvis; bullet in or near the bladder.

The patient had been wounded six or eight weeks before his arrival at Southall. His papers made no mention of any symptoms pointing to infection of the peritoneal cavity or injury of the bladder. He said that he knew there was a bullet in him somewhere, but that it had not troubled him.

A few days after admission he complained of inability to pass water and said that there was something in his penis. On examination the nose of a rifle bullet was found protruding from the meatus of the urethra and was easily withdrawn with a pair of dressing forceps. He had urinated eight hours previously.

A CASE OF LETHARGIC ENCEPHALITIS.

By **E. Temple Smith, M.B., F.R.C.S.E., D.O. (Oxon.),**
Senior Ophthalmic Surgeon to St. Vincent's Hospital and the Royal Alexandra Hospital for Children, Sydney.

A Miss M., aged 18, was sent to me on March 22, 1920, by Dr. Blackwood, on account of ocular symptoms following a short febrile illness.

The clinical picture was rather striking. She was a big, well-nourished girl, pale and of somnolent aspect. The latter feature was caused by drooping of the upper eyelids, a partial ptosis. The lids could be almost raised by a strong effort, even when the frontalis tendon was firmly held down by the examiner's hand. This showed that the levators were not completely paralysed. The pupils were of average size, the right rather larger than the left and their reactions were normal.

The vision was almost normal in each eye, but she could not see to read at 33 centimetres. She had a hyperopia of 1 D. and 1.25. When given this correction she could just see to read at arm's length. The addition of 0.5 D. enabled her to read comfortably. Here again, there was not complete paralysis of the ciliary muscle; in such a condition three or four dioptres would have been needed for reading. There was paresis or loss of tone and her latent hyperopia had become manifest. The symptoms thus differed from those in the peripheral lesion of botulism, where the paralysis is usually complete and often associated with mydriasis. In diphtheritic cycloplegia, which is thought to be of nuclear origin, there is, as here, only paresis of accommodation and, as a rule, no mydriasis.

She had had some transitory double-vision, but now had none; nor even was there any heterophoria (latent tendency to inco-ordination) or nystagus. The fundi showed no pathological changes and there was neither neuritis nor fullness of veins.

She was still inclined to go off to sleep very readily in the day-time. The knee-jerks were present.

Dr. Blackwood very kindly furnished me with particulars of her illness. "The patient was first seen on March 5, 1920, when she complained of malaise, headache, aching and 'soreness' of limbs. The temperature was 38° C.. March 6: The

patient is somewhat somnolent, but is easily roused and answers questions readily. Ptosis is noticed and the patient complains of diplopia and inability to read. Her temperature had varied between 37.5° and 38.3° C.. Headache is persistent. The patient remained in much the same condition until the 13th (eight days), when the temperature fell to normal and remained so. She continued to be very sleepy until the 26th, when I left for my holiday. She was seen by you on the 22nd."

The cerebro-spinal fluid was not examined.

We thus have the syndrome, made so familiar by recent literature, of fever, somnolence and diplopia, followed by ophthalmoplegia. The latter, we are told, may be internal, external, or both. The somnolence in this case was unequivocal and striking, both in the acute attack and after.

I gave a good prognosis as regards the ocular symptoms and ordered temporary glasses half a dioptre in excess of the hyperopic correction. I saw the patient again on May 4 (six weeks later). She has less ptosis, but the lids still drooped a little, giving her a sleepy look. Her accommodation had recovered and I weakened the glasses. She had had one transient attack of diplopia. A slight exophoria was demonstrable, but no paresis of the external muscles other than the levator.

Since her illness her disposition has changed; she has become irritable in temper, suggesting a profound cerebral lesion, from which she has been fortunate enough to recover. I also noticed a "slur" in her speech, which her mother tells me was not present before her illness, also a rather mask-like immobility of feature. Taylor, of London, has recently called attention to the grave and permanent alteration of disposition in patients who have recovered.

There seems agreement that the lesion is an infection causing a low-grade inflammation in the neighbourhood of the optic thalamus and the floor of the fourth ventricle. It is also held that, while it possesses characters in common with acute polio-encephalitis, it is a separate entity. Its epidemiological connexion with influenza, too, is unsettled. Ptosis is the one exception to the general rule that lesions of the centres of higher rank (cortex and associated centres) do not cause paralyses of individual muscles, but conjugate paralyses. Ptosis is sometimes cortical in origin. Its association, however, with an internal ophthalmoplegia points definitely to a nuclear lesion on the floor of the fourth ventricle.

Such an acute affection is met with in poisoning by ptomaines, lead, alcohol, diphtheria and possibly some other acute infections; but the association with fever and somnolence, in the absence of any of the usual causes of ophthalmoplegia, seems to be pathognomonic of lethargic encephalitis.

Reviews.

THEORIES OF EVOLUTION.

It is unnecessary to say that Professor Adami, in writing his study of evolution,[1] has produced a most interesting and intellectually stimulating book. The book is divided into three parts. The first part, occupying 100 pages, consists of the author's Croonian Lectures on "Adaptation and Disease." It may be within the recollection of readers that these Croonian Lectures formed the occasion of a very angry attack on Professor Adami by Sir Ray Lankester in the correspondence columns of the *British Medical Journal*, in which Sir Ray Lankester's rudeness and temper contrasted very unhappily with the more dignified reply of the author of the lectures. This correspondence is reprinted as an appendix. Parts II. and III. of the book consist of reprints of a number of other addresses and papers contributed by the author within the past twenty years. These, too, are interesting, as showing the development of ideas in Professor Adami's mind during the course of years. Adami presents in this book a very strong and very powerful indictment both of Weismann's views of heredity and of Bateson's. He writes from the point of view of a physiologist and student of function. To him life is a moving equilibrium and metabolism the keynote of the whole matter. He criticizes both Weismann and Bateson as being too exclusively occupied with morphology and unable to appreciate the chemical or physico-chemical properties of organic or organized material, living or otherwise. But Adami is not content with the demonstration of difficulties or absurdities in the views of Weismann or of Professor Bateson and of their followers. There is a strong positive and constructive side to the argument. Adami supports the hypothesis that living matter, or the essential living matter of each species, must exist as a complex molecule or "biophoric molecule," a real chemical entity, possessing in its more integral portion a central ring or chain of relatively fixed constitution. The radicles composing that ring or chain are supposed to be capable of fixing (and then of reproducing) a series of side-chains which may vary, so that within the species there may be various strains, just as we may speak of various strains of crystalline hæmoglobin being obtained from simple strains of human blood. Put in this very short way the idea may seem very crude and correspondingly unconvincing to the casual reader of a review. But, as a matter of fact, the conception is one that has to be taken very seriously and Adami's treatment of the subject is no dry discussion of a recondite biological conundrum. It is instinct with life and interest; at every point it presents and discusses matters that are of absorbing interest to the medical man, whether he be clinical physician, pathologist or bacteriologist. And, beyond all this, Professor Adami is the master of a delightfully clear and attractive literary style. His style alone would make the book a pleasure to read. We think Adami's book is a valuable contribution to medicine. Most thoughtful medical men will find in it a great deal with which they are likely to agree.

[1] Medical Contributions to the Study of Evolution, by J. G. Adami, M.D., F.R.S., F.R.C.P.; 1918. London: Duckworth & Company; Demy 8vo., pp. 372; illustrated.

Naval and Military.

APPOINTMENTS.

The following appointments, etc., have been announced in the *Commonwealth of Australia Gazette*, No. 49, of June 3, 1920:—

Australian Military Forces.

First Military District.

Australian Army Medical Corps—

Captain (Honorary Major) J. A. Murphy is transferred to the Reserve of Officers and to be Major, 16th March, 1920.

Fourth Military District.

Australian Army Medical Corps Reserve—

The resignation of Honorary Major T. Borthwick of his commission is accepted, 23rd March, 1920.

Fifth Military District.

Australian Army Medical Corps—

Captain (provisionally) S. J. Cantor is transferred to the Australian Army Medical Corps Reserve and to be Honorary Captain, 1st April, 1920.

The Senate of the University of Sydney has approved of the proposal to establish a number of new chairs with the money provided by the will of the late Sir Samuel McCaughey. Among the new chairs is one of Surgery. The conditions of tenure will be the same as those obtaining in connexion with the Chair of Medicine.

VENEREAL DISEASES.

Tasmania.

The following notifications of venereal infections have been received by the Department of Public Health, Tasmania, during the quarter ended March 31, 1920:—

	Males.	Females.	Total.
Gonorrhœa	97	14	111
Syphilis	19	6	25
Chancroid	5	0	5

The Medical Journal of Australia.

SATURDAY, JUNE 12, 1920.

The Organization of the Congress.

Accompanying this issue of *The Medical Journal of Australia* will be found the second circular of the Australasian Medical Congress, Brisbane, 1920. In ten weeks the Congress will begin. It is therefore not too early for members to make their arrangements for leaving their practices and spending a week or two in the capital city of Queensland. Of the attractions of the Eleventh Session of the Congress we have written on several occasions within the past few months. It is therefore unnecessary to deal again in the abstract with this subject. We have now an opportunity of examining the organization of the Congress, as revealed in the circular. There are several matters to which attention should be directed, not only for the purpose of stimulating a wide interest in the Congress, but also because it is only just that credit should be accorded to those who accomplish good work for the benefit of the medical profession.

The Congress has been divided into eleven sections, but in the circular it will be noted that this number has been reduced to ten by the combination of the Section of Ophthalmology (which now becomes 6A) and the Section of Otology, Rhinology and Laryngology (which now becomes 6B). In other respects the arrangement is the same as that which obtained at Auckland in 1914. The office-bearers of the Sections have been selected with care and due consideration of the attainments of the individuals chosen. The office of President of a Section of Congress is a coveted one; it places the practitioner selected in a position of honour, as a leader in a particular branch of medical practice. The choice of Presidents does not call for comment, for it will meet with general approval. Two incidents, however, are of importance. In the first place, it will be noted that there has been a change in the Presidency of the Section of Naval and Military Medicine and Surgery. Colonel Barber, C.B., C.M.G., D.S.O., has unfortunately been compelled to resign his important position for private reasons. The office will be filled by Colonel R. J. Millard, C.M.G., C.B.E.. Regret will be felt on account of the withdrawal of Colonel Barber, but we feel sure that the conduct of the Section will be safe under Colonel Millard's direction, for his achievements in the Australian Army Medical Corps secured for him universal popularity and general recognition. The name of Lieutenant-Colonel H. S. Newland, O.B.E., D.S.O., as President of the Section of Surgery is a tribute to the magnificent work accomplished by Australian surgeons on the field, in addition to being a mark of recognition of the President's own excellent work.

The success of a section depends as much on the capability of the Honorary Secretary as on the ability and personality of the President. The Queensland practitioners selected for these responsible posts are admirably suited for their duties and their names in the list augur well for an excellent meeting.

The absence of the name of General Sir Neville Howse, V.C., K.C.B., K.C.M.G., from the list of Vice-Presidents of the Congress is giving rise to some surprise. We are hopeful that this omission may soon be rectified. It has been the practice to ask the administrative heads of the Naval and of the Military Medical Services to accept the position of Vice-Presidents of Congress in the past, a position of especial honour. We understand that the Executive Committee invited Sir Neville Howse to accept this position, but there was apparently some misunderstanding. The whole medical profession in the Commonwealth will experience great regret if this unfortunate occurrence is not rectified within the next week or two.

While the primary object of the Congress lies in the scientific work of the Sections, the social side of the conference is an important one. The Executive Committee has taken this work seriously and we are informed that even the most fastidious member of Congress will find that his Queensland colleagues have catered for his tastes. A fatherly interest will be taken in the comfort of visitors from other States. The sub-committee entrusted with the care of accommodation for members has left no stone unturned to insure that everyone will secure what he wants. The medical world and his wife will be in good hands in Brisbane.

In fine, the Congress has much to offer to the visi-

tor. Those who wish to work, will have a generous opportunity. Those who prefer a delightful holiday in the northern State during the most pleasant season, will not suffer disappointment. There is no reason why anyone should stay away.

THE ÆTIOLOGY OF PNEUMONIA.

During the past two years an enormous literature has been added to an already extensive library on the subject of the causation of pneumonia. Thanks to the ingenious work of Lister in South Africa and of a number of American bacteriologists, we now possess a clearer conception of the specific differences of the various strains of pneumococci. Some information has also been collected concerning the biology of these organisms in their relation to their human host. Without a pathogenic bacterium, pneumonia cannot occur, but it is equally true that the bacterial cause of the affection is not the whole story. It is possible to regard susceptibility to disease as either a positive or a negative quality. The normal mechanism of the organism embraces a provision for the destruction of invading foreign bacteria. It also includes the complex arrangements for the dissociation, destruction or neutralization of the toxins or of the metabolic products of these bacteria. Since we are forced to the conclusion that these mechanisms are to some extent, at all events, group mechanisms, and that the protection of the body is directed generally against all infections, it seems to be rational to regard susceptibility as a positive phenomenon, something that represents a departure from the normal condition of perfect health. On the other hand, it can be shown that all animals can acquire artificial immunity to those diseases to which they are more or less liable. This liability probably means a condition in which the power of the bacterium to grow within the body and to produce pathological changes is greater than the normal power of the tissues and tissue fluids to resist invasion. The appearance of immune bodies, which convey to the organism a complete immunity, represents a positive phenomenon in immunity. Susceptibility, from this point of view, would therefore be a negative quality, a lacking of specific immune bodies. In endeavouring to gain an understanding concerning the relationship between man and the various infective processes, it is wise to keep both these ideas clearly in mind. There are certain infections to which human beings are susceptible. Morbilli is perhaps the most striking instance among the commoner infections. With but few exceptions, every child exposed to the infection acquires the disease. On the other hand, one attack confers an immunity which is practically complete. In such a disease as measles, all that is required to determine an attack is the presence of the virus and the existence of the apparently natural susceptibility. This represents one extreme. The other extreme is when the natural resistance to an infection is high, as is the case with tuberculosis. In Europe, as Naegeli and others have demonstrated, 95% or more of the population become invaded by the tubercle bacillus relatively early in life. The evidence in the *post mortem* room reveals that the great majority of people are resistant to the infection and live and die without manifesting any sign of an infection. In Australia this invasion is said to be less common, although we are unaware of any systematic search for signs of invasion in persons who have died after attaining the age of sixteen years. Something must occur beyond the mere invasion of the body by tubercle bacilli before an infection takes place. Analogy teaches that in animals with relatively high resistance to an infective process, a massive dose of bacteria may suffice to overcome the resistance. The virulence of the invading bacteria must be high; in other words, the bacteria must comprise at least a large proportion of individuals adapted to growth and physiological activity within the tissues of the host. It has further been shown that the resistance can be lowered by disturbances of the chemical life of the host. By starvation the animal does not necessarily become less resistant to a disease of this kind. Trauma, especially if extensive, burns, previous infections of another kind and grave disturbances of the circulatory apparatus appear to render the resistant animal susceptible to infection. Numerous experiments have been conducted to ascertain whether resistance to these infections is lowered by exposure to cold and to wet. As was to be expected, the vasomotor balance of the animal body is so delicate that a normal animal is not altered either by chilling or by immersion in cold water. On the other hand, it can be shown that a

prolonged localized anæmia offers a casual bacterium a better chance of gaining a foothold.

Dr. C. E. Corlette has recently questioned whether the exposure to cold and wet which is so often incriminated as the determining factor of an attack of pneumonia, is in fact an active participant in the ætiology of this disease. He offers a very plausible explanation for the increased incidence of pneumonia in the winter time. The suggestion that during cold weather people tend to live in closed rooms and thus to expose themselves to an atmosphere containing pneumococci is, however, not sufficient to account for the infection. The individual is undoubtedly resistant to pneumonia. The normal person can harbour certain types of pneumococci without danger. It is probable that he can also deal with the other types without difficulty. The fact that pneumococci are freely distributed by patients and that those in their immediate vicinity usually escape infection, may be regarded as evidence in favour of this contention. It is therefore necessary to postulate some other factor of a successful infection. The experience in the war zone is very significant in this respect. Pneumonia occurred largely in those who had previously been infected with some other organism. Victor Vaughan found that the incidence among American soldiers in training camps fell when overcrowding and bad ventilation were removed. It is probable that nasal catarrh, an infection to which human beings are highly susceptible, spreads rapidly when people live in close proximity to one another. Catarrh affects persons whose naso-faucial tissues are unhealthy. The tendency to "catch cold" can be removed by proper attention to the nose and throat. A person with a normal nose and throat does not acquire a catarrh, even if he is chilled to the bone on a cold, gusty day, or is drenched with rain and remains in his wet clothes. Attendants at Turkish baths rarely become infected, although they are constantly exposed to extreme changes of temperature. The increased incidence of pneumonia in winter-time is no doubt associated with the closure of windows and the habit of sitting close to an open fire, but we feel justified in doubting whether this increase is due to the exposure to a massive dose of pneumococci. It is probably due to many factors, of which the close association with persons suffering from catarrh is the most important. Stuffy rooms often go hand-in-hand with other forms of defective hygiene. The lack of fresh air, especially in persons with bad teeth and unhealthy noses and throats, must inevitably lead to disturbances of digestion and of circulation. A vicious circle is set up by the presence of catarrh in close companions and the unhealthy state of the adenoid tissue of the fauces and posterior nares in the individual. In mouth breathers, the peripheral vessels of the mouth and throat become contracted during cold weather and a local anæmia may be produced. It is, however, doubtful whether this localized anæmia is usually severe enough to be an important factor in the production of a lowered resistance. The coincidence of cold weather and an increased frequency of pneumonia cannot be regarded as a direct one. From the point of prophylaxis, we would agree with Dr. Corlette in seeking a considerable measure of protection in the cold, clean, healthy open air.

CARBO-HYDRATE DIET IN DIABETES.

The researches of Dr. Frederick M. Allen on the production of diabetes in dogs by the removal of the greater part of the pancreas have thrown much light on some of the more obscure problems attaching to human diabetes. Sufficient knowledge concerning the mechanism of the onset of glycosuria after the elimination of pancreatic function, however, is not available at present to justify the application of the lessons of the laboratory *in toto* to the clinic. Dr. Allen appreciates the necessity for more information and has continued his researches at the Rockefeller Institute for Medical Research. He has recently published two further contributions to his "Experimental Studies on Diabetes."[1] In the first he reviews the evidence he has been able to collect in the course of seven years concerning the anatomical relations of the pancreas to diabetes. He has apparently restricted his experiments to dogs, although he adduces proof of the extraordinary variation of these animals and the difficulty of establishing a standard in regard to the amount of pancreas necessary to support life and health. The fact that his dogs have varied in weight from 2 kilograms to 81.8 kilograms is in itself suggestive of the disadvantage of employing them. He shows that under ordinary conditions diabetes is induced when the weight of the pancreas is reduced to from one eighth to one ninth of its original weight. There are exceptions to this rule. In a few instances the removal of three quarters has sufficed to leave the animal diabetic. A small dog with indifferent appetite and limited vigour, usually remains unaffected in circumstances in which a larger animal will succumb. Even this is not quite uniform. The remnant of pancreas may hypertrophy and the once diabetic dog may gradually acquire

[1] *The Journal of Experimental Medicine*, April 1, 1920.

sufficient pancreatic tissue and function to keep it well. Moreover, there would appear to be some importance in the relative amount of pancreatic tissue to the body mass or weight. Dr. Allen finds that the mere ratio between the weights of the remnant of pancreas and of the body is so inconstant and so variable, that he is disinclined to set up a normal value, below which the carbo-hydrate metabolism breaks down. But he is able to show that as the depancreatized animal wastes after the operation, the proportion of pancreas to total body mass alters, sometimes to the advantage of the dog, sometimes to its detriment. The increase in size of the remnant may be due to hypertrophy and may reach as much as 400%. It may also be due to inflammatory and infective processes. In the latter case the increase is obviously of no advantage to the animal. From the facts presented by Dr. Allen, it is evident to the careful reader that there must be a considerable difference in the mechanism of the disturbance between the mechanical removal of from 0.875 to 0.9 of the total pancreas and the elimination of the functional activity of the gland resulting from some pathological process. Even if the pathological process be arrested, it is not true that part of the glandular tissue is intact and part is excluded. The pathological process will have affected the whole of the gland and, while the function may not be entirely abrogated, the hormones and external secretion will certainly have undergone physical and chemical changes and not merely a reduction in quantity.

Dr. Allen demonstrates that when the greater portion of the pancreas is removed and the remnant, representing about 12.5%, is left around the main duct, glycosuria does not set in unless a relatively large amount of carbo-hydrate is given. As a rule, when excessive amounts of carbo-hydrate are added to the diet, a severe diabetes is produced and there is rapid progress, with emaciation and weakness, to an early death. With care in feeding, the tolerance to carbo-hydrate may be gradually raised. In some instances the tolerance became so high that he was subsequently unable to reproduce the glycosuria. Ordinarily he found that the improved tolerance induced by starving after the removal of the greater part of the pancreas could be broken down by giving diets rich in starch or in sugar. In some of his experiments, the dogs refused to eat sufficient carbohydrate or glucose to produce glycosuria. He mentions one animal which not only refused to eat this diet voluntarily, but vomited it when the starch or sugar was given forcibly in a bolus. The facts set out are significant. In the partially depancreatized dogs, there appears to be a tendency toward an increase of tolerance to glucose and carbo-hydrate and toward a re-establishment of the animal's health. Of course, the dog does not become normal; the limit of safety has been very greatly reduced. On the other hand, in the human diabetic patient, we may look in vain for signs of a spontaneous increase of tolerance. In the early stages it is highly probable that the pathological process affecting the pancreas is progressive. Until its nature can be diagnosed with accuracy and treatment can be directed toward the arrest of the process, any measures directed toward the increase of tolerance of carbo-hydrate will be resisted by the organism. Later, when the active changes in the pancreas have become arrested or slowed down, the prospects of raising the tolerance materially do not appear to be good.

Dr. Allen points out that in his experiments he found that glucose was more powerful than starch in producing diabetes in dogs after partial depancreatization. He also found that when an animal was maintaining health on a starch diet, the addition of glucose often determined a hopeless diabetes. By studious application to this problem, he was able to show that there is not any actual difference in mechanism, but only one of rapidity of action. In the presence of a permanent diabetes, in which recovery is impossible, starch brings on the glycosuria more slowly than sugar, but just as surely. He wishes to deduce from these observations that it is quite as essential to limit the intake of starch in a diabetic as to control the amount of sugar swallowed. He has also produced evidence to dispose of the curious but widely held belief that oatmeal is more easily assimilated by diabetics than other forms of starch. To anyone who has studied the carbo-hydrates, the opinion that oatmeal, toast, biscuits and so on, offer starch in a more advantageous form than in ordinary bread, does not carry conviction with it. We are promised by Dr. Allen a further article on the method of repair of the traumatic inflammation of the pancreatic remnants, on the nature of the hypertrophy and on the processes of degeneration affecting the island of Langerhans in association with a lowering of tolerance to carbo-hydrates. Each scrap of information brings us appreciably nearer a solution of the difficult problem of *diabetes mellitus*.

THE INFLUENCE OF HYPNOSIS ON MUSCULAR ACTIVITY.

The phenomena of hypnosis have been watched with close attention for many years, but they have seldom been studied from a chemical or physical point of view. It is well known that a person in the state of catalepsy can tolerate a dose of quinine which would produce severe intoxication or death in the waking subject. The hypnotized person can hold the arm extended to right angles from the trunk for a much longer period than can a person fully awake. No explanation for this state of affairs has yet been brought forward, nor have these problems been subjected to any planned scientific investigation. The need for accurate knowledge of this kind impelled the late Dr. N. C. Nicholson to start on an extensive investigation. Unfortunately, his untimely death occurred shortly after the completion of one chapter of the work.[1] This ingenious investigator planned to analyse the condition of the muscular, nervous, cardio-respiratory, gastro-intestinal, endocrine and excretory systems during the condition of hypnosis. He started with the muscular system. The test chosen was work done with Mosso's ergograph. The ordinary person reveals the effect of fatigue and of decreasing muscular

[1] *Bulletin of the Johns Hopkins Hospital*, March, 1920.

power when subjected to this test. The arm, forearm and hand are secured with straps in the metal bed of the apparatus. The middle finger is required to lift a known weight and the excursions are recorded on a revolving drum by means of a writing lever. The contractions of the flexor muscles are selected for this purpose. A series of preliminary experiments demonstrated the frequently established fact that the excursions of the lever soon become shorter and within ten minutes become extremely short. Moreover, Dr. Nicholson found that the lapse of at least one hour and often as much as two hours was necessary before the subject could repeat the test as effectively as before. He then hypnotized a subject and suggestions were constantly given that he was capable of increased energy and muscular power. The curve showed long sweeps of the recording pen. When the smoked paper on the drum was completely used up, the diminution of the height of the curve was very small, as compared with the curve of the normal person. The experiment was repeated and at the end of one hour's work under hypnosis the subject was awakened and asked to undertake the test. The resultant curve did not differ at all from the curve of work accomplished by a normal person untired by a previous effort. The tiring became manifest within ten minutes. Hypnosis was then induced for the second time. The muscular work remained strong for a considerable period. As the height of the curve decreased, further suggestions were given of increased energy. The response was striking. The excursions immediately increased and remained at the new high level for a long time. Numerous variations of these experiments yielded the same result. The person during hypnosis revealed a great increase of muscular activity. Not only was endurance greatly increased, but fatigue, which is always very manifest in persons during the waking state, was undetectable. It was always possible to spur the hypnotized person to further increased work. Suggestion applied to the normal person resulted in a feeble and short-lived response. These records are of importance. They demonstrate beyond question an altered physiological condition of the muscular apparatus during hypnosis. Further research is needed to ascertain the nature of the change in metabolism, before a hypothesis can be drawn up of the exact form of change in functional activity of the muscles. It is to be hoped that Dr. Nicholson's colleagues in the Phipps Psychiatric Clinic and the Physiological Laboratory of the Johns Hopkins Hospital will be stimulated by the ingenuity of their lamented colleague and will continue his researches.

TREATMENT OF ASTHMA.

The rational treatment of bronchial asthma should obviously be based on ætiological considerations. It is therefore necessary that the numerous and varied ætiological factors which may play a part in the genesis of this affection, should first receive consideration. In a review of the causes of bronchial asthma Dr. M. J. Gottlieb[1] states that the condition may be an anaphylactic or reflex phenomenon. Distinction should be drawn between spasmodic asthma proper and such conditions as asthmatic bronchits, dyspnœa due to cardiac failure or uræmia and obstructive dyspnœa arising from inflammatory tissue, tumours or enlarged glands, producing occlusion of the tracheobronchial air passages. Physical examination together with radioscopy and endoscopy should be the means of excluding all the conditions mentioned except asthmatic bronchitis. Thorough examination of the oral and nasal cavities assisted, if necessary, by skiagraphy is essential for the discovery of possible abnormalities which may excite reflexly the asthmatic paroxysm. Search should also be made in other regions of the body for the purpose of excluding other possible sources of reflex irritation or absorption of toxic material. In the search for evidence of anaphylaxis tests of skin sensitiveness are made with suspensions of autogenous bacteria, as well as stock bacterial proteins, epidermal and food proteins and pollen. It is stated that bacterial anaphylaxis may occur as a result of the intermittent absorption of the proteins of dead bacteria from infected areas, notably the accessory nasal sinuses, diseased tonsils and tooth sockets. It is in patients suffering from pollen sensitiveness that improvement following climatic change is marked. When an individual exhibits sensitiveness to one particular article of food, the simple and efficient treatment is to eliminate that article from the dietary. The treatment of patients showing sensitiveness to epidermal proteins, such as the hair of dogs or cats, feathers, etc., is usually satisfactory when the exciting cause can be removed. Interesting cases in this group are those showing sensitiveness to horse dandruff. These patients are stated to be readily relieved by a process of desensitization. In cases of hay fever and asthma due to pollen sensitiveness, excellent results have been claimed from the method of desensitization. It is regarded as essential that the degree of sensitiveness be ascertained by means of skin tests with various pollen extracts before treatment is attempted. This is accomplished by applying various dilutions of the pollen to which the patient is sensitive, to small scratch marks made upon the flexor aspect of the forearm. The dilution next higher to the one which gives a reaction, is selected as safe to use for the commencement of treatment by desensitization. The initial injection is usually 0.2 c.cm. of this dilution and the dose is increased by 0.2 c.cm. until 1 c.cm. is reached. The next dilution is then employed and the dose steadily increased.

It is recommended that treatment should be commenced about six weeks before the onset of the attack is anticipated and that injections should be given at intervals of fours days. Caution is enjoined when increasing the larger doses, since a condition of anaphylaxis may suddenly develope. The use of drugs in the treatment of asthma based upon symptomatic indications is likely to become entirely subsidiary to the specific treatment by elimination of the exciting cause or by protein desensitization.

[1] *The Journal of the American Medical Association*, April 3, 1920.

In the *New South Wales Government Gazette*, No. 108, of June 4, 1920, it is announced that the position rendered vacant by the death of Professor Sir Thomas Anderson Stuart on the Board of Health of New South Wales has been filled by the appointment of Alderman William Henry Lambert, President of the Australian Workers' Union.

Abstracts from Current Medical Literature.

PATHOLOGY.

(207) Coagulation in Embryonic Blood.

V. E. Emmel, S. A. Levinson and M. E. Fisch (*Journ of Experimental Medicine*, February 1, 1920) found that in pig embryos the average coagulation time of the blood was about twenty-three minutes. This represents a coagulation time six to eight times greater than that obtained for the adult. They proceeded to investigate the three factors upon the interaction of which the coagulation of the blood is primarily dependent, *viz.*, prothrombin, calcium and fibrinogen. Prothrombin is evidently chiefly a derivative of blood platelets. In many cases of pathological hæmorrhage, such as hæmophilia and *purpura hæmorrhagica*, the abnormal variations in coagulation are found to be primarily related to quantitative or qualitative deficiencies in this platelet material. The platelet content of embryonic and of adult blood in the case of pigs showed no appreciable difference. It is evident that a quantitative determination of the platelet content is not necessarily sufficient, as in the case of hæmophilia, for example, where the platelets may be present in approximately normal number, but still be abnormal in their activity. It was found that the addition of platelet material obtained from adult pig blood reduced the coagulation time for embryonic blood by 75%. The addition of two drops of 0.5% calcium chloride reduced the coagulation time for embryonic blood by over 50%. The addition of tissue extract to embryonic blood reduced the coagulation time to that obtained for adult blood. It appears obvious, therefore, that in spite of the fact that the embryonic blood normally shows a long coagulation time, it nevertheless contains all the constituent elements essential to coagulation and these elements also react under proper conditions in a time equivalent to that of the adult blood. From the standpoint of the results with tissue extract alone, it would appear that the delayed coagulation time in embryonic blood must be due to some inhibitory factor. Chemical analysis demonstrated a calcium content in embryonic blood in excess of that of the adult. In view of the facts indicated it is evident that the calcium in embryonic blood must be present in some combined form. The difference in fibrin and fibrinogen content is evidently not primarily responsible for the greater coagulation time of embryonic blood. The delay in coagulation is primarily due to some combination of the calcium which renders it unavailable for coagulation. Lee and Vincent have demonstrated that in icterus in man a notable tendency to hæmorrhage seems to depend upon the binding effect of the blood by the bile pigments. Bang has shown that in the new-born infant bile pigment is constantly present in blood obtained from the umbilical cord. This pigment shows a constant increase during the first few days and, if marked, the transition is readily made to the condition designated clinically as *icterus neonatorum*. The authors demonstrated the presence of bile in the circulating blood of the pig embryos. Since it was further demonstrated that by the addition of bile to adult blood, conditions could be produced essentially identical with those of embryonic blood and since in the preceding analysis of the factors involved in coagulation no significant differences could be demonstrated between the blood of the embryos and that of the adult other than the presence of bile in the former, the data justify the conclusion that the bile content in the circulation of the pig embryos constitutes the primary factor accounting for the greater coagulation time in the blood of these embryos.

(208) Serological Groupings of Vibrion Septique.

Vibrion septique, an important ætiological factor in cases of gas gangrene arising out of wound infections, has been investigated by Muriel Robertson, of the Lister Institute, from the point of view of the agglutination reaction (*Journ. of Path. and Bact.*, February, 1920). The strains examined have been found to fall into at least three serological types. In working with freshly isolated cultures of *Vibrion septique* it was frequently observed that a strain failed to agglutinate with any of the sera. After repeated plating, however, the strain would become agglutinable. This behaviour was so frequent with recently separated cultures that it was attributed to impurity. It was also observed that cultures from uncontaminated sources, such as those derived from blood cultures from the patient, were among those that agglutinated immediately upon isolation. The importance of these phenomena, in regard to impure cultures and the agglutinability of apparently pure strains, lies in the fact that they render negative agglutination results valueless as a means of diagnosis. On the other hand, *Vibrion septique* sera are strictly true to type and do not agglutinate strains of other anaerobic species; a positive agglutination result is therefore of definite diagnostic value. The production of a soluble toxin has been demonstrated for all the strains (eleven) tested for this property. Equally potent toxin has been obtained from laboratory strains of many years' standing, as from those recently isolated from acute cases of gas gangrene. Toxin of the full potency has been obtained from strains isolated from samples of milk. The toxin injected intravenously into rabbits in doses from 0.1 to 1 c.cm., according to the potency, produces death in 3 to 10 minutes, with symptoms of respiratory disturbance, paralysis and convulsions. Monotype antitoxins are found to neutralize the toxins from cultures belonging to each of the three agglutination types. A serum made with the toxin from two strains, both belonging to Type III., was found to protect guinea-pigs against infection with living cultures of *Vibrion septique* belonging to the three agglutination types; this serum also afforded protection against a *Vibrion septique* strain which does not fall into any of the three agglutination types and which stands for the present in a group by itself. The *Vibrion septique* antitoxic serum was quite inactive against *B. œdematiens* and afforded no protection whatsoever.

(209) Intravenous Injections of Dichlor-Ethyl-Sulphide in Rabbits.

Alwyn M. Pappenheimer and Morgan Vance (*Journ. of Experimental Medicine*, January 1, 1920) found that rabbits dying of dichlor-ethyl-sulphide poisoning within 24 hours showed extensive hæmorrhages and œdema of the lungs. Severe lesions of the alimentary tract were present in about one third of the rabbits. These lesions took the form of hæmorrhages and membranous inflammation. The hæmatopoietic tissues show marked changes. In all but two rabbits of those surviving more than 24 hours, there occurred after a single injection of 0.005 to 0.01 gm. of dichlor-ethyl-sulphide per kilo. a pronounced fall in the number of circulating leucocytes. In these two rabbits a second injection of the same dose was followed by the typical reaction. In some instances the injection is followed by an absolute and percentage increase in the polymorphonuclear cells which fall rapidly with the onset of the leucopenia. In the terminal stages the polymorphonuclear cells practically disappear from the peripheral blood. On the other hand, sometimes an initial fall in the number and percentage of polymorphonuclear cells is followed by an absolute and relative increase. This secondary rise is associated with the appearance of unripe forms in considerable numbers and coincides with regenerative activity of the bone marrow. The leucopenia is accompanied by a relative lymphocytosis. The absolute number of lymphocytes is diminished in the later stages and lags behind that of the granular cells in the cases in which regeneration is occurring.

(210) Toxins and Antitoxins of Bacillus Dysenteriæ Shiga.

Peter K. Olitsky and I. J. Kliger (*Journal of Experimental Medicine*, January 1, 1920), working with rabbits, have separated an exotoxin and an endotoxin from cultures of the Shiga dysenteric bacillus. The two toxins are physically and biologically distinct. The exotoxin is relatively heat-labile, arises in the early period of growth and yields an anti-exotoxin immune serum. The exotoxin exhibits a specific affinity for the central nervous organs in the rabbit, giving rise to hæmorrhages and necroses. The endotoxin exerts a typical action on the intestinal tract, producing œdema, hæmorrhages, necroses and ulcerations, especially in the large intestine. A potent anti-dysenteric serum should contain antibodies against the exotoxin, as well as the endotoxin. The authors have shown experimentally that such a serum can be produced in horses.

PÆDIATRICS.

(211) Ætiology of Arthritis Deformans in Children.

The question of the ætiology of *arthritis deformans* in children has gone through the same stages of development as it has in adults. For a long time, and in spite of the fact that acute arthritis had been known to belong to a group of metastatic phenomena following tonsillar infection, chronic joint troubles were believed to be due to metabolic disturbances, although Still considered the possibility of infection as a cause of the type of disease which he observed. In addition to errors in metabolism, the nervous system and the ductless glands were also considered in attempting to assign a cause to the disease. A. H. Byfield (*Amer. Journ. of Dis. of Children*, February, 1920) found that mere removal of infected tonsils and adenoids was not sufficient to control the symptoms and signs of the disease, or to arrest its progress. He, therefore, found it necessary to search for other foci of infection, especially as it was usual for such manifestations as slight elevations of temperature, leucocytosis, exacerbations of pain and even involvement of new joints to persist in the cases operated upon. No trouble was found in the teeth of any of the patients. Attention was then directed to the nose and especially to the nasal accessory sinuses. In the 16 cases reported a uniformity in the signs and symptoms was manifest, there being present emaciation of varying degree, anorexia and irregularity of temperature, with frequent rises to 37.8° C., and occasional rises to 40.5° C.. A leucocytosis of from 11,000 to 25,000 was present. The spleen was not enlarged. A positive tuberculin test was obtained in one case only. A rheumatic history was obtained in a few instances. The teeth were healthy in all but one case and no benefit followed extraction. Treatment resolved itself into removal of tonsils and adenoids and into surgical intervention on the nasal sinuses. The author concludes that *arthritis deformans* in children results chiefly from a chronic infection situated in the tonsil and post-nasal adenoid tissue and in the accessory sinuses of the nose. In children less than three years of age, the portal of infection seems to be limited to the tonsils and adenoids. After this time removal of tonsils and adenoids is ineffective in arresting the progress of the disease. A sinus infection should be suspected as an ætiological factor if, after the tonsils and adenoids are removed, there remains elevation of temperature (even if slight), leucocytosis and poor appetite, together with a slowness of the joints to become less painful and swollen. Relapse and exacerbations are definite indications of the need of nasal treatment. Poncet's disease is probably *arthritis deformans* in an individual infected with tuberculosis. Although mechanical and orthopædic measures are helpful, surgical treatment of the nasal sinuses is to be regarded as the most important therapeutical measure indicated in *arthritis deformans* in children. The prognosis in uncomplicated cases is good as far as arrest of the disease is concerned. The deformity and functional disability may persist for a considerable time.

(212) Acute Cholecystitis in Children Complicating Enteric Fever.

It is a well-known fact that the gall-bladder is probably always infected during the course of enteric fever and that the typhoid bacillus plays an important rôle in the causation of gall-stones and of cholecystitis. The cases of empyema of the gall-bladder or acute typhoidal cholecystitis, however, that require surgical treatment or cause death during the disease, are few in number. In children acute suppurative cholecystitis of any kind is rare, only about twenty cases being reported. M. R. Reid and J. C. Montgomery (*Johns Hopkins Hospital Bulletin, January*, 1920) have collected 18 cases of enteric fever in children under the age of 15 years who either died from or were operated upon for complications arising in the gall-bladder. In Case 11 of the series the acute cholecystitis did not develope until eight months after recovery from the disease; in all the other cases the complications came on during the course of the disease. Eight patients died without the interference of a surgeon. All these were reported prior to the year 1893. Since that time ten cases surgically treated have been reported, with one death. The records of the earliest cases were not supported by any bacteriological studies. More recently cultures were usually made at the time of operation. Where the organism was the typhoid bacillus in pure culture, the leucocyte count was relatively low, usually about 10,000. In a case in which cultures were not made, the count was 33,000; one case showing an unidentified organism gave a count of 21,000. The six patients treated surgically in the Johns Hopkins Hospital all recovered. The authors lay emphasis upon the importance of differentiating between gall-bladder complications that do and those that do not require surgical treatment. Slight pain and tenderness in the region of the gall-bladder, associated with a slight degree of spasticity of the right rectus, are not so very unusual during the course of typhoid fever. The vast majority of these patients get well. Operating on enteric fever patients for minor symptoms of cholecystitis is only slightly less justifiable than operating upon all patients that have pain in order to prevent intestinal perforation. Nevertheless, the low operative mortality justifies operation when there is grave doubt as to the nature of the condition of the gall-bladder. Acute suppurative typhoidal cholecystitis should receive immediate surgical treatment, for in such cases rupture of the gall-bladder may occur and thus lessen many times the chances of recovery. The best treatment is cholecystectomy. The authors report a case in detail, in which an operation was undertaken about two months after the beginning of a severe attack of enteric fever. The gall-bladder showed a typical picture of an acute hæmorrhagic cholecystitis, with necrotic areas of varying size.

(213) Dilatation of the Colon in Children.

After a review of the literature on the subject of dilatation of the colon, A. E. Meyers (*Amer. Jorn. of Dis. of Children*, March, 1920) considers that the ætiology of this condition and its treatment of it are both uncertain and unsatisfactory. If, in all cases of persistent constipation, especially those beginning in infancy, a Röntgenological examination were carried out, it would be found that the sigmoid in many of the patients was looped, twisted, redundant, dilated and hypertrophied. The past history in all these cases is identical. In spite of rational feeding during the early part of infancy, a bowel movement without the aid of a suppository, enema or laxative was of rare occurrence. Distention with gas was a noticeable feature, always causing abdominal protuberance. Normal growth was interfered with and the patients were always below par with lowered resistance. But constipation was the dominant symptom which compelled the patient to seek advice. Lubricants, laxatives, cathartics and enemata would often give temporary relief. Correction of the diet received very little attention and the patients were usually found to be getting far too much starchy food. If a comparison be drawn between dilatation of the colon and congenital hypertrophy of the pylorus, the two conditions show a definite similarity. As there are varying degrees of hypertrophy in pyloric stenosis, it would seem probable that the various forms of dilated colon seen in constipated children merely constitute varying degree of mega-colon. As regards the cause of the condition, the consensus of opinion seems to be that it is a congenital abnormality in the lower end of the hind gut, which takes the form of a muscle hyperplasia. It usually involves the rectum and spreads a varying distance up the colon. The abnormality may affect one or all segments of the intestines. Thickening of the wall and increase in the lumen are caused by the hyperplasia of the muscle fibres. The author, however, considers that in all these cases spasm is an additional and important factor. He reports one case of mega-colon and five cases of partial dilation (with accompanying Röntgenograms). Treatment in all cases consisted of the use of atropine (1‰ solution), commencing with five drops thrice daily and increasing until the patient complained of dryness of the mouth. A strict starch-free diet was instituted. Gradually toast, cocked fruit and green vegetables were added and the atropine decreased. When the function of the bowels began to return, the atropine was, as a rule, discontinued, but the constipation did not return. Of the six patients treated, five gave excellent results; the sixth disappeared from the clinic and could not be traced.

British Medical Association News.

SCIENTIFIC.

A meeting of the New South Wales Branch was held at the B.M.A. Buildings, 30-34 Elizabeth Street, Sydney, on May 28, 1920, Dr. C. Bickerton Blackburn, O.B.E., the President, in the chair.

Dr. F. Guy Griffiths read a paper entitled "Some Discursive Remarks on Diseases of the Lungs in the Australian Imperial Force (Egypt)." The text of the paper appears on page 545 of this issue.

Dr. L. W. Bickle congratulated Dr. Griffiths on his paper. He wished to add his own testimony of the efficiency of the male nurses in the Australian Imperial Force. He related that when he was leaving Fremantle on a transport they thought that they were going to Suez. Subsequently they had learned that their destination was England. They had applied for Army sisters, but the request had been refused. Shortly after they had sailed they had a severe outbreak of influenza. In all, there were about a hundred cases treated in the ship's hospital, besides very many mild cases. Many of the patients were desperately ill and needed careful and good nursing. The orderlies of the Australian Army Medical Corps detailed for nursing service carried out their work magnificently. He recalled a curious incident of this voyage. The journey occupied 58 days. On the fifty-sixth day two cases of measles occurred. He subsequently learned that no further spread of infection took place after their arrival in England.

Referring to the question of alcohol, Dr. Bickle agreed with Dr. Griffiths in his opinion that it was not necessary, as a rule. He had found it advisable to give it freely when it was required. He cited cases of double pneumonia in civil and military practice in which life had been saved by a liberal use of champagne.

Dr. Bickle demonstrated to the meeting his simple inhaler pipe. He pointed out that the inset of the stem half way down the bowl prevented the inhalation of any accumulated liquid used. The pipe was made of celluloid, but an ordinary cherry-wood or other wood pipe would do almost as well. A piece of cotton wool was placed in the bowl and the substances to be inhaled poured on it. He often used *Pinus sylvestris*, eucalyptus, menthol and the like. He claimed that iodine or other disinfectant might be employed with benefit in consumption, both to the patient and to those in his environment, since the vapour would disinfect the sputum before expectoration. He had found it of value in influenza and in whooping cough.

Dr. Harvey Sutton, O.B.E., dealt with the condition at "the other end," in the front lines. He did not see much pneumonia among the troops there. The pneumonia that occurred was either a traumatic condition, due to infection following bullet or other wounds of the chest, or a secondary infection following an independent pre-existing infection. He held that it was very remarkable that so little pneumonia had occurred among the Australian mounted troops in Palestine. The men had been exposed to extreme cold and wet and experienced very trying conditions on the Moabite plateau without pneumonia appearing. He had formed the opinion that pneumonia was not caused by exposure to wet and cold. In the second battle of Gaza there was a New Zealand officer who received numerous bullet wounds of the chest. His accoutrements had been riddled with bullets. This officer was quite cheerful and surprisingly well. Dr. Sutton paid him a visit shortly after and found that he had felt so well that he had gone to a neighbouring tent to visit a friend. The result of this indiscretion was a very severe attack of traumatic pneumonia, from which the patient recovered after a long illness. He was sure that if the troops had sufficient good food and plenty of work, the risk of pneumonia was not great, despite cold and wet. Turning to the subject of secondary infections, Dr. Sutton pointed out that in the trans-Jordan campaign they had passed through an area that had been allowed to become intensely infested by the enemy. The mosquitoes were there in their billions. Malaria and influenza were extremely common. They had found it very difficult to distinguish between these infections by clinical signs. Fortunately, they had the assistance of a bacteriologist in the laboratory. Dr. Eustace Ferguson had come to their aid and the diagnosis of malaria could be made within a short time. They were thus able to inject quinine intramuscularly with excellent effect. It was disappointing, however, to find many instances where after recovery from malaria and influenza, men had died of pneumonia down the line.

In regard to the question of giving alcohol in pneumonia, Dr. Sutton recited an experience in a children's hospital. There had been four honorary medical officers. One of them was very fond of alcohol in the treatment of pneumonia. It was found that the results among his patients were at all events not better than those obtained by the other medical officers. The alcohol treatment proved useless in children.

Dr. Archie Aspinall spoke of his experience with the first contingent on a troopship. There was a great deal of what was called influenza among the men. In many cases there were scattered crepitations heard over the chest and the patients coughed up bright red blood, suggestive of tuberculosis. This condition cleared up slowly. At Mena the area of the camp was designed so that the smallest bivouac space possible was allowed. The guy ropes of the tents overlapped for no reason and the men were overcrowded in tents. The ground was flat and the sand and dust was indescribable. A short time after they arrived the whole camp coughed throughout the nights. Many of the men had some rise of temperature and from bad administration had to be kept at the field ambulance, lying on a mackintosh sheet on the ground, instead of hospital accommodation being available. Pneumonia was not infrequent and many deaths occurred. An eminent physician, after having been in Egypt a few days only, had visited them and had lectured to the men. He told them that they were suffering from overwork and the inhalation of a particular kind of dust. After the men had been out on heavy duty they used to throw themselves on the sand and would often fall asleep at once. The temperature fell suddenly after sundown. Possibly this had something to do with the causation of the lung condition.

On the troopship were some two hundred horses, accommodated throughout the ship. Those on the bottom deck were in an extremely hot, stifling atmosphere, with very little fresh air. They, however, enjoyed complete freedom from respiratory troubles and landed well. Eight horses died from pneumonia, some with empyema and they were all from the upper decks, which were considered the best. Curiously enough, the horses affected were not together, but scattered throughout the ship. The horses were exercised every day and were most carefully groomed and fed.

Dr. Aspinall said that the orderlies were wonderful as nurses. They sorted themselves out in a most helpful way. A man might offer to do odd jobs, to carry patients, or anything, when he felt that he was no good at nursing. One and all they had helped most admirably.

Dr. J. S. Purdy, D.S.O., stated that before the war pneumonia was uncommon in Egypt. While there was much pneumonia at Mena Camp, there was very little on the other side of the Nile. He had been asked to investigate the cause of the unhealthy condition of Mena. He found that 6.75 cm. below the surface of the sand there was permanent dampness. He attributed the defect of the site to this fact. As a result the camp was moved for the British territorials. Subsequently a responsible military officer viewed the fine, open area and asked why it was not used as a camp. He was told that a medical officer had reported that it was unsuitable. This did not deter this officer from again pitching a camp on this site. Within a short time pneumonia broke out among the troops in the camp. Dr. Purdy did not dispute that the inhalation of fine sand was harmful, but he called attention to the fact that at Tel-El-Kebir there were frequent sand-storms and yet pneumonia did not occur largely among the men.

In referring to the magnificent behaviour of the orderlies, he related an incident from the battlefields of France. An orderly, looking after a dangerously wounded man in a dangerous zone, had given him his own gas mask. Unfortunately, this brave man died of the almost inevitable gas poisoning.

Dr. W. L. Kirkwood, O.B.E., was reminded by the recital of the details of a case of recurrent pneumonia of another peculiarity of the cases of influenza met with in Egypt. The fever and the signs of consolidation often lasted for an unusually long time, up to 21 days or longer. Dr. Kirkwood

referred to the painful necessity he had experienced of having to nurse and treat some of his patients in the presence of dust. He was prepared to agree with Dr. Purdy that dust might be harmless to healthy men as a factor in causing pneumonia, but it certainly was not harmless to men ill with pneumonia. He gave an interesting account of the difficulties he had met in February, 1919, when there was no accommodation for his patients, except in tents, where the sand and dust penetrated.

Dr. H. L. Kesteven referred to the articles which had recently appeared in the American medical journals on the experience at the various military camps. It had been found that epidemic pneumonia in camps was always preceded or accompanied by some other epidemic disease. Of course, there were constantly sporadic cases of lobar pneumonia. When measles, coryza or streptococcal infections became prevalent among the troops in the camps, pneumonia usually followed. Dr. Kesteven suggested that in Egypt the damp sand induced coryza and that the pneumonia became epidemic after the men had been freely affected with the coryza.

Dr. W. F. Litchfield agreed that the majority of pneumonia cases could be described as secondary. He stated that the latest ideas concerning the pathogenesis of pneumonia were that those bacteria which normally resided in the throat and upper air passages, suddenly became active. It was held that a primarily infecting organism caused a lowering of the resistance of the host and thus prepared the soil for the attack by the pneumonia organism. This view had been put forward in connexion with influenza. If this view were correct, it would be rational to take the strain of organism from the patient for the purpose of protective inoculation and not a stock strain of the same bacterium. The American observers held that in primary pneumonia the infecting bacteria were not those usually found in the fauces and oral cavity.

Dr. Litchfield stated that there was no doubt concerning the connexion between cold and pneumonia. The hospitals were becoming full of patients with pneumonia. As soon as the cold, westerly winds appeared, pneumonia became common. He had studied this question and had endeavoured to compare the conditions on the coast with those on the western side of the Blue Mountains. Pneumonia was commoner and more severe to the west of the mountains than in Sydney. He attributed this to the fact that the cold, dry winds were more prevalent in the former districts.

Dr. Litchfield agreed with Dr. Griffiths that alcohol was, as a rule, of little value in the treatment of pneumonia. It was often used as a kind of routine in hospitals and it was very difficult to check the practice. He had found that the results in children were no better when brandy was given than when it was withheld. At times it was necessary to give alcohol, especially for the heart; in such circumstances he thought that it should be given freely.

Dr. C. E. Corlette did not think that the causation of pneumonia was at all a simple matter. Cold was said to have a good deal to do with it. He would wish to call attention to the fact that in the polar expeditions the explorers lost the tendency to catarrh when the temperature fell below a certain level. In cold air the whole of the moisture was thrown out. It could be seen in a refrigerating chamber that the moisture breathed out condensed on the cold surfaces as snow. Any organisms that might be contained in the exhaled air or in the spray on coughing or speaking, would be frozen with the moisture and held on the surface of the ground or walls. The chances of infection were thus lessened or removed. In temperate climates catarrh was more common in winter than in summer. He suggested that the concentration of bacteria in the air had something to do with this fact. Carnelly, Haldane and Anderson had shown that the number of bacteria per cubic foot of air varied very considerably in different places. On the tops of high mountains there were extremely few, while in crowded dwellings they reached a maximum. Observations made in Glasgow had shown that when a whole family occupied one room, nearly one thousand bacteria were present in a cubic foot of air. Under these conditions, the inhabitants were compelled to rebreathe the air and with it the organisms derived from the mouths and air passages of the other persons. During cold weather it was common for the doors and windows to be closed. The result was an increased concentration of bacteria. The temperature in a dwelling-room, even in the depth of winter, was not low enough to produce a condensation of the moisture on the surface. The moisture remained suspended as a fine fog. This fog contained dust and bacteria. In the summer time the ventilation was better. The windows were kept open and the doors were rarely closed. When the air was warm, the moisture was taken up as vapour and consequently there were less favourable conditions for the suspension of bacteria. He suggested that the increased prevalence of catarrh in winter time as compared with the summer, was due to some extent to these facts. In conclusion, Dr. Corlette referred to the case of recurrent pneumonia spoken of by Dr. Griffiths. Mention had been made of œdema of the legs. He raised the question whether this was not in fact an embolic condition, with infarction of the pulmonary tissue.

Dr. C. Bickerton Blackburn, O.B.E., referred to the splendid work carried out by Dr. Griffiths at the No. 2 Australian General Hospital. His, the speaker's, experience of pulmonary affections in Egypt extended over a considerable period. At first he had noted that pneumonia was both rare and mild. It caused no deaths. During the first twelve months they treated approximately 5,000 men. Only one death occurred. This was from abscess of the lung. Later the influenza epidemic altered the whole state of affairs. He spoke of the arrival of a transport with 44 Assamese on board. Influenza had broken out among these men. They had been cooped up below and had suffered intensely. Some had influenza and some had pneumonia as well. Two men died during the process of disembarkation. Subsequently many others succumbed. During the whole epidemic, about 100,000 Egyptians died.

Dr. Blackburn said that malaria and influenza were frequently noted in one patient. They had learned the futility of giving quinine to prevent influenza. The majority of the men were taking quinine, on account of the prevalence of malaria. It did not prevent influenza. He had noted that the leucopenia seemed to counteract the leucocytosis of pneumonia. The difficulties of diagnosis were at times very great. There were numerous cases of pneumonia and many deaths. On the other hand, there were many wonderful recoveries. It was often impossible to anticipate the issue; patients who appeared to be in a hopeless condition, would recover, while others who seemed to be progressing well, suddenly became acutely ill and died.

Dr. Blackburn referred to the question of tuberculosis in soldiers. The Medical Board, of which he had been President, had ordered every man suffering from active tuberculosis to be sent back to Australia. This was a definite policy. He knew that many of the men were kept in Egypt for a considerable time, but this was due to transport difficulties. It was essential that provision for isolation should exist. He had found that the climate of Cairo was not good for tuberculosis. Very few of the patients did well. The medical practitioners of Cairo recognized this and did not keep tubercular patients in the town, except during the winter months. He confirmed Dr. Griffiths's statement concerning the apparent difficulty of finding tubercle bacilli in the sputum in Egypt. He could not explain it, but the fact was undeniable. Dr. Blackburn mentioned some unusual causes of hæmoptysis which had given trouble in diagnosis. In the case of an officer in Palestine, the blood spitting continued for some time and no cause was discovered until the pharynx was carefully examined. A leech was found. Leeches were plentiful in the drinking water. Sometimes the leech would attach itself to the pharyngeal wall. It would suck a little blood and then move on to a fresh place. Leeches could remain in the pharynx for a long time.

In regard to alcohol, Dr. Blackburn expressed the view that under certain circumstances alcohol was very useful for adults suffering from pneumonia. He objected to its exhibition in every case. Perhaps it might be required for one patient out of four. He regarded alcohol as a drug. In these cases he had less experience of its use in children. Dr. Corlette's arguments were very interesting, but he was convinced that sudden chill did play a part in the causation of pneumonia.

In his reply, Dr. Guy Griffiths stated that he had given up the use of spirits in the treatment of pneumonia only during the last few years. He recalled the case of a woman whom he had known take about 0.6 litre of brandy and 0.3 litre of whisky each day for two days during a very severe attack of pneumonia. He admitted that this patient had recovered. In reply to Dr. Harvey Sutton, he repeated that he had no experience of disease in the front line. He thought that Dr. Sutton had been somewhat optimistic in his estimate of the value of the laboratory diagnosis of malaria. His experience had been that the search for the parasites often failed. Moreover, he wished to call attention to the fact that the discovery of the parasite did not prove that the illness from which the patient was suffering at the time was due to malaria. Referring to the point raised by Dr. Aspinall, he expressed the opinion that the death-rate among the troops in Egypt was not excessive. It had been found that the normal death-rate for troops generally varied between 3‰ and 4‰. During the early period in Egypt the death-rate scarcely exceeded this. While the training might have been severe for some of the men, the vast majority found that it improved their capacity for work. Similarly, dust was not harmful to the strong men who remained well, but it was deadly to those suffering from pneumonia. He had found that the problem of the action of damp and cold in the ætiology of pneumonia was extremely puzzling. He agreed with Dr. Corlette in regard to the evil effect of overcrowding. It would be valuable if Dr. Corlette and Dr. Litchfield would undertake an exhaustive investigation into these factors in the causation of catarrh and pneumonia.

Dr. Donald Luker read a paper entitled "A Study of One Hundred Cases of Skin Sensitivity to Koch's Old Tuberculin Under Dispensary Conditions" (see page 548).

Dr. Harvey Sutton, O.B.E., said that he was greatly interested in Dr. Luker's suggestive paper. It was very important to recognize the possible use of the cuti-reaction in determining clinical tuberculosis as contrasted with a latent infection. Many investigations into the incidence of active tuberculosis had been like shooting in the dark. He recalled the great divergence in the results obtained by different observers in England. Some diagnosed tuberculosis on the basis of the most minute or doubtful signs, while others insisted on very definite signs. He was convinced that it was necessary to apply a test that was impersonal. For this reason he was inclined to try Dr. Luker's quantitative test. He would not try to apply it to school children. The parents would not agree and it would be difficult to carry it out extensively. On the other hand, the test might be of considerable value for applicants for positions in the public services. If it helped them to weed out those who were in the earliest stages of tuberculosis, it would be of great value.

Dr. W. L. Kirkwood, O.B.E., congratulated Dr. Luker for attempting to apply a mathematical system to the problem of the diagnosis of tuberculosis. The measurement of the degree of failure to resist the tubercular infection was a rational procedure.

Dr. W. F. Litchfield expressed the hope that Dr. Luker would continue his investigations into the subject of the differentiation between the various degrees of activity of tuberculosis. He could not agree with Dr. Luker that every person in the community in Australia was infected. Dr. Littlejohn had shown many years previously that only 5% of unselected children reacted to the von Pirquet test. He, the speaker, had had a large experience and had arrived at a similar conclusion. Between 5% and 10% of children under ten years of age yielded a positive von Pirquet reaction. He thought that Dr. Gill had come to the same conclusion. He had used Mulford's old tuberculin and the tuberculin prepared at the Commonwealth Serum Laboratories and had found that the test was extremely valuable. A negative result justified the exclusion of tuberculosis, while when a positive reaction was obtained, the diagnosis of a tubercular infection was certain. A positive von Pirquet reaction was a great help in clinching the diagnosis when tuberculosis was suspected. He cited instances in support of the claim that the test could be relied on for diagnostic purposes.

Dr. F. Guy Griffiths agreed with Dr. Litchfield that tuberculosis was far less common in Australia than Dr. Luker assumed. He was very interested in Dr. Luker's able work and hoped that he would continue his observations.

Dr. Luker replied very briefly.

The undermentioned gentleman has been nominated for election as a member of the New South Wales Branch:—

Robert Mandeville Alcorn, Esq., Lic. Lic. Mid., 1914, R. Coll. Phys., Irel.. Lic. Lic. Mid., 1914, R. Coll. Surg., Irel., West Maitland.

Medical Societies.

MELBOURNE PÆDIATRIC SOCIETY.

A meeting of the Melbourne Pædiatric Society was held at the Children's Hospital, Melbourne, on May 12, 1920, Dr. A. E. Rawden White, the President, in the chair.

Dr. A. Jeffreys Wood introduced for discussion the case of a boy, aged 11, for whom he had made the diagnosis of *encephalitis lethargica*. The boy had been ill for eleven days before his admission to hospital on March 28, 1920; on March 17 he had taken part in a swimming competition and the same evening manifested symptoms of delirium, which followed a shivering attack. He improved during the next two days. On March 21 he was out of bed and playing with his sisters. The following day he was delirious again and very feverish. There was an absence of vomiting and the bowels were constipated. He continued in this state until his admission to the Children's Hospital on March 28. At that time the most conspicuous feature about the boy was his mental excitement. This was associated with clonic movements of both arms and especially of the right arm, while the abdominal muscles were held very rigidly and contracted regularly about once every five seconds. The limbs appeared to be slightly wasted, but there was no evidence of paresis. The neurological examination elicited uniformly negative results, except that the right knee and ankle jerks were difficult to obtain. The examination of the other systems was also negative, save for some gingivitis and ulceration of the mouth. In regard to the mental condition, although alert and excited, the boy answered questions extremely well and remembered recent and past events. Examination of the cerebro-spinal fluid yielded a negative response, both in regard to cell content and in regard to the Wassermann test. The blood showed a total leucocyte count of 18,000 per c.mm., with a relative increase in polymorphonuclear cells. The Wassermann test applied to the blood also gave a negative response. Since his admission the boy had been very drowsy, listless and apathetic, but he could be easily roused and answered questions well. The clonic contractions of the *recti abdominis* had ceased after two days, but the rigidity of these muscles had persisted. There had been no localizing signs and no oculo-motor paresis. One month after admission, on April 24, it was noted that better responses were obtained in the tendon reflexes of the right knee and ankle; on the same day a distinct improvement in the general condition was apparent. The boy was very much brighter, expressed a wish to read and the abdominal muscles were observed to have lost a great deal of their rigidity.

Dr. Wood remarked that the case he had just outlined was the third instance of what appeared to him to be *encephalitis lethargica* among children. The first two were in quite young children, both of whose parents had recently had epidemic influenza. In the case of the boy he had just shown he had been unable to trace any contact with influenza. Both of the two younger children, in common with this older boy, had exhibited initial excitability, which passed into drowsiness and lethargy of several weeks' duration. The first child was in the Children's Hospital for two months and had manifested cranial nerve palsies in the shape of squint and pharyngeal paralysis which necessitated feeding with a tube. The second child lived for six weeks; during the whole of this period he was very dull. Squint was also noted in this case. In the present case squint had not been detected, but there had been persistent dilatation of one pupil. The rigidity of the abdominal muscles and their rhythmic contractions were features he had not formerly encountered, but he had seen some comment on this

peculiarity in a recent article in the *Journal of the American Medical Association*. Dr. Wood drew attention to the peculiar character of the delirium in this boy. Although he was so very busy and excited, his attention could always be caught and he would answer questions. The possibility of tuberculous meningitis had been considered, but it was not supported by the findings in the cerebro-spinal fluid.

Dr. S. O. Cowen said that he was unable to speak from experience of *encephalitis lethargica* among children, but he had had various opportunities of studying the condition amongst adults, both clinically and in the *post mortem* room. He had not observed the preliminary excitability to which Dr. Wood had drawn attention, but had regarded uncontrollable drowsiness from the beginning as characteristic of *encephalitis lethargica*. A very striking example was supplied by the case of a man who, while entertaining friends in his home, had to beg to be excused, because he found it impossible to keep awake. During the day this patient had been troubled with double vision and had regarded it as an indication that he was over-tired. On the same evening he had been overcome by the extreme drowsiness to which the speaker had referred. There was a distinctive character about the lethargy, in that a patient would lie, with eyes closed, apparently oblivious of all his surroundings, but at the same time would usually interject in any conversation that might be proceeding. Another peculiarity was that the extreme dulness and heaviness by day were often combined with restlessness at night, when the patients would complain of headache and pain. Dr. Cowen stated that he had not observed any alteration in the tendon jerks, such as was present in the case shown by Dr. Wood. The only paralyses he had encountered had been those of cranial nerve origin. Diplopia was one of the most constant features and might be classed with the lethargy and the very frequent association with influenza, as one of the three main points in the disease. He had taken opportunity to examine the *fundus oculi* in several instances, but had not detected any changes. As regards prognosis, it had been said that, whereas there was none in particular, it was generally good. Dr. Cowen had made *post mortem* examinations in several cases of *encephalitis lethargica*. He described the general pink appearance of the brain, which, on close inspection, was found to depend on the intense congestion of every tiny cortical vessel. Microscopically, perivascular cell collections in the grey matter had been described, but actual punctiform hæmorrhages were said to be rare. All the patients on whose bodies he had conducted autopsies, had had influenza or had been in intimate contact with it. It was interesting to observe in one instance the hæmorrhagic broncho-pneumonia they had learned to associate with epidemic influenza.

Dr. A. E. R. White mentioned that he had had some experience of *encephalitis lethargica* in France and England. In general the cases bore a close resemblance to uræmia, except that there were no corresponding changes in the urine. The lethargy was such that the patients would rarely finish a sentence, but the only neurological sign in some cases was an early contraction of the pupils; in others diplopia and oculo-motor paralyses occurred. Slowing of the pulse was the only point of note in the circulatory system and the condition was very puzzling until there had been admitted a sufficient number of cases to establish it as an entity. Their experience abroad had been that the prognosis was good.

Dr. H. Douglas Stephens showed two patients with multiple bony lesions for comparison. The first was a girl, aged 12½ years, with multiple foci of osteomyelitis and periostitis. The child had been ill for nine months and her illness was dated by her parents from a wetting she had received on one occasion. The next day she complained of pain in the right thigh and later on of pain in the right hip joint. Two weeks later an abscess was opened over the head of the right femur. And at the same time another focus of suppuration was incised over the left tibia. In the months that followed various sequestra, fifteen in all, were discharged from the latter wound; the pieces of bone ranged in size from small spicules to fragments 2.5 cm. in length. Eight weeks prior to the girl's admission it had been found necessary to open yet another abscess in the right forearm. From this the discharge had been profuse, but no sequestra had separated. A culture taken from the depth of the most recently opened focus yielded a pure growth of *Staphylococcus aureus*. Dr. Stephens exhibited skiagrams of the various lesions and commented upon the fact that, although the osteo-periostitis of the tibia was very extensive, there was no involvement of the knee-joint. He also demonstrated the sequestrum in the affected ulna and the skiagram of the right femur and hip-joint.

Dr. Stephens mentioned as a point of interest that this girl had passed several urinary calculi. The condition was a common one, but the second case to which he would direct attention, was one of extreme rarity.

A girl, aged seven, had come under Dr. P. B. Bennie's observation two years previously. She had been sent to Dr. Bennie for treatment of a hip affection, which had been diagnosed as tuberculous. Dr. Bennie had been unable to satisfy himself regarding the tubercular nature of the hip trouble and skiagrams taken at the time had disclosed a most unusual condition. Dr. Bennie had learned that the child's paternal grandfather had once undergone an abdominal operation and upon inquiry had been advised by the surgeon that a condition of the liver was found which was considered syphilitic. The child before the meeting had been given a course of anti-syphilitic treatment with no appreciable benefit. Dr. Stephens pointed out the obvious shortening of the left lower limb and the fact that the left hip-joint allowed of movement of the limb in all directions. He then exhibited a series of skiagrams showing (*i.*) a cystic condition of the upper end of the right femur, (*ii.*) a radiate appearance in the bones of the pelvis, (*iii.*) similar rarefaction in the bones of the left hip-joint, (*iv.*) involvement of the phalanges, left radius and ulna, (*v.*) cystic change in the scapula and upper end of the right humerus, (*vi.*) a somewhat smaller degree of the same condition in the left humerus, (*vii.*) affection of both fibulæ and of the right tibia. While in hospital the child had been kept in bed, but formerly she had always been allowed to move about. There had been no spontaneous fractures and, although the X-ray plates might lead one to expect it, there was no "egg-shell crackling." The condition could only be detected by X-rays and all the bones were affected except the vertebræ, ribs, clavicle and skull. The Wassermann reaction was negative.

Dr. Bennie exhibited the prints of skiagrams taken two years previously and the members were enabled to make an interesting comparison between the earlier and later changes. In the opinion of the majority of members, the changes had not progressed during the two years. Dr. Bennie remarked that the nature of the lesions had completely puzzled him. His attention had been limited to the left hip and he had not realized that the changes were so extensive as had been demonstrated by Dr. Stephens. He had tried anti-syphilitic treatment and had considered with regard to the hip the possibility of multilocular hydatid. However, that did not seem probable in the light of the skiagrams shown by Dr. Stephens that evening. He had sent the child into hospital in the hope that diagnosis might follow an exploratory incision and pathological examination of the diseased tissue.

Dr. H. Douglas Stephens said that, in a search through issue of the *Lancet* of November 16, 1919, in which what appeared to him to be the identical condition was described under the term *osteitis fibrosa*. The facts and comments he was about to give them were taken from the article to which he had referred.

The condition was more common than would be suspected and the nomenclature had been confused with cyst formation occurring in such lesions as extreme degeneration of a myeloma, so-called blood cysts, callus cysts, etc.. Many cysts in bone occurred in the course of *osteitis fibrosa*. Was *osteitis fibrosa*, as it occurred in a single bone, the same as von Recklinghausen's multiple fibro-cystic disease of bone? Slesinger thought it was a separate entity, although in both occurred a localized or generalized replacement of bone by masses of fibrous tissue. He found no case in the literature of the appearance of *osteitis fibrosa* in other bones after its operative treatment in any one bone. Further, von Recklinghausen's disease occurred somewhat late in life, whereas *osteitis fibrosa* was found during the epiphyseal period. There were two theories regarding the ætiology: (1) That *osteitis fibrosa* represented a metaplastic transformation of the bone-marrow into a fibroid tissue and (2) that it was the result of a chronic inflammation of unknown origin, occurring in the endosteum. On the matter of pre-disposing factors there

was some difference of opinion in regard to trauma. Sex was considered to have no influence, but age was important. Of 97 reported cases, 75 were in patients under 20 and 22 occurred after that age. The largest number was found at the age of 12 years. The three long bones particularly liable to be affected in *osteitis fibrosa* were the femur, humerus and tibia. After these three came the fibula and phalanges, whilst cases had been reported in the clavicle, ulna, os calcis, radius, pelvis, carpus. tarsus and metatarsus. The description given of the morbid anatomy in *osteitis fibrosa* was that it comprised small cyst-like spaces, or one single cyst with a wall of definite structure. The absence of a lining membrane rendered the nature of the cysts a matter of conjecture. The fluid was never definitely bloody, but clear or light brown and often considerable in quantity. The bone was thinned, with no sign of new deposit; the condition extended up to the epiphyseal line. In cases without cyst formation the cavity in the bone was filled with fibrous tissue, which often contained fluid in its meshes, and the marrow was replaced to a great extent by fibrous tissue formed from the endosteum. Cultural investigation had yielded uniformly negative results.

The symptoms were those of the complications and of the deformities and the disease was often present for a long time without inconvenience. Pain was often absent until fracture occurred, but there might be aching in the bone at night. A gradually developing limp was generally the first thing noticed and later some swelling appeared in the affected part. X-rays were essential in diagnosis and revealed expansion, thinning, cyst formation, with clear spaces crossed by trabeculæ. The differential radiographic diagnosis from old fracture, myeloma, other cyst-forming conditions and some tubercular lesions was often impossible. Purely local treatment was justified by results. Measures of partial resection and amputation had been abandoned. At present the treatment consisted in cutting through the bony shell, exposing the affected area and curetting thoroughly until all diseased tissue had been removed. The freedom from recurrence after local treatment supported the view of the disease as a metaplasia rather than an inflammatory condition. It afforded evidence that it was a different process from von Recklinghausen's disease.

Dr. H. Hume Turnbull drew attention to two cases of pyo-bacilluria with general œdema. The condition and general appearance of both children strongly suggested nephritis, but repeated examinations of the urine disclosed evidence of urinary tract infection only and an absence of renal elements *e.g.*, casts. From the first case, in which the urine showed an extreme degree of bacilluria and pus in small amount, *B. coli* had been recovered in pure culture; in the second child Dr. Webster had reported gross pyo-bacilluria. He had obtained both fermenting and non-fermenting colonies on MacConkey plates. The former he had identified as *B. coli* and the latter as *B. gärtner*. The urine from both children was a good quantity and good specific gravity; albumin was present, but Dr. Turnbull thought it very anomalous that in the presence of so much œdema, there should be no shedding of renal epithelium in the shape of casts.

Dr. H. Douglas Stephens inquired if any sores had been noted about either of these children. For some years past he had met every winter a certain number of children with impetiginous sores, in whom nephritis and œdema subsequently developed. In these cases the urine was always clear at the outset. He had not been able to find any literature bearing upon the condition, but he had come to regard it as an entity and had noted its consistent association with the cold weather. In the consideration of pyo-bacilluria in children it was important to bear in mind the comparative frequency of such congenital abnormalities as stenoses and valve formations in the ureters and urethra. He had recently seen a baby of eleven weeks with pronounced pyo-bacilluria. In this infant the kidney was palpable. He had formed the opinion that there existed some congenital defect, probably a ureteral valve or stenosis.

Dr. Lionel Hood recollected certain cases of trench nephritis in which casts were apparently absent. Certainly the majority of patients with trench nephritis showed casts in the urine, but, as a rule, the œdema was not so general as in the children shown by Dr. Turnbull, being frequently limited to the face and legs.

Dr. E. Alan Mackay referred to an article in the *British Medical Journal* of March 15, 1920, in which œdema with bacilluria was discussed. In the cases there considered the urine contained neither albumin nor casts. It was claimed by the writer that very beneficial results followed the use of the Epstein diet.

Dr. Rupert Downes, C.M.G., presented a boy, aged 12, who had sustained a compound backward dislocation of the lower end of the humerus and a wound on the extensor surface of the left elbow. The accident occurred on March 1, 1920, and when the boy came to the hospital about 7.5 cm. of the dislocated humerus was projecting from the wound. After excision of the edges of the wound and irrigation with saline solution, reduction of the dislocation was effected and the limb was placed on an internal angular splint in supination, provision having been made for drainage. The boy was transferred to the out-patient department on April 9, when a condition of fibrous ankylosis, with about 30° of mobility, was present. Pronation and supination were limited. At a subsequent examination of the elbow on April 19 the wound was healed, movement ranged from 70° to 102° and there was very little limitation of pronation and supination. On May 3 the range of movement was from 60° to 102°.

Dr. W. G. D. Upjohn, O.B.E., commented upon the very good result and inquired with regard to the ultimate prognosis. In adults such a condition generally became more stiff as time progressed, but he thought that the outlook might be better in children.

Dr. E. Alan Mackay and Dr. A. Jeffreys Wood thought that further improvement might be anticipated. Dr. Wood mentioned a case of supra-condylar fracture with resulting limitation of movement, in which 10° of improvement every three years was obtained.

Dr. Downes next showed two children who had recovered from the effects of accidents involving extensive compound fractures of the skull In view of the severity of the injuries, the uneventful recovery and the absence of sequelæ in both cases were remarkable.

Dr. Downes then asked the attention of the meeting for the case of a child who had been admitted to hospital with diffuse peritonitis of pneumococcal origin. He had operated and provided drainage through two incisions. For one week treatment had consisted of hypertonic saline irrigations daily, after which 30 c.cm. of anti-pneumococcal serum were left in the peritoneal cavity. Eleven days after admission the child's breathing became distressed and examination revealed an impaired note at both bases. An exploratory puncture yielded pus in both situations. The double empyema was treated by repeated aspiration. From the second to the thirty-ninth day of the child's stay in hospital, altogether fourteen subcutaneous injections, each 30 c.cm. of anti-pneumococcal serum were administered. Aspiration of the chest was performed on five separate occasions. The total amount of pus evacuated was 750 c.cm.. On the fifty-second day the initial dose, 10 millions, of an autogenous pneumococcal vaccine was given. The child made a steady recovery and was transferred to the convalescent cottage exactly three months after her admission.

Dr. Downes remarked that two considerations had influenced him to show this child. The first was the very fortunate recovery and the second the success attending repeated aspiration.

Dr. Vera Scantlebury read the notes of a child who appeared to present some of the features of "thymic" asthma. The infant was eleven months old. At the age of three months he began to have fits of cyanosis. During these attacks the baby lost consciousness, became very rigid, held his breath, with resulting cyanosis. The complete attack was from 2 to 5 minutes' duration. The seizures had become gradually more frequent and four or five times daily were then occurring. During the eight months over which these attacks had extended the child had had a good deal of digestive trouble. It had been learned on inquiry that the child's mother had been subject to fits for many years. The Wassermann reaction was negative; the child seemed well-nourished and showed no obvious evidence of rickets. An X-ray screen examination revealed some increased density laterally from the upper part of the aortic shadow. There was some enlargement by percussion of the thymus gland

and a diminished vesicular murmur at the apices. The spasms were purely tonic and no clonic movements were detected.

Dr. Reginald Webster showed:

(*i.*) Various agglutination tests, including agglutination in the identification of *B. typhosus* recovered from a child who was a urinary "carrier."

(*ii.*) A bronchiectatic lung of a child shown by Dr. Turnbull at a former meeting of the Society.

(*iii.*) A malignant renal tumour—mesothelioma—removed from a child, aged 2 years.

(*iv.*) A massive lymphadenoma of retro-peritoneal glands, in which the clinical condition had closely simulated tuberculosis, but diagnosis had been made by microscopic section of a cervical gland removed for the purpose.

Congress Notes.

The date of the Australasian Medical Congress is August 23-28, 1920.

The official address of the Congress is: The Honorary Secretary, 11th Session, Australasian Medical Congress, B.M.A. Building, Adelaide Street, Brisbane.

The following are the Local Secretaries in the several States:—

New South Wales: Dr. F. Brown Craig, Macquarie Street, Sydney.
Victoria: Dr. A. Leo Kenny, Collins Street, Melbourne.
South Australia: Dr. F. S. Hone, North Terrace, Adelaide.
Western Australia: Dr. W. Trethowan, 267 St. George's Terrace, Perth.
Tasmania: Dr. E. Brettingham Moore, Macquarie Street, Hobart.
New Zealand: Dr. C. E. A. Coldicutt, 82 Simonds Street, Auckland.
Queensland: The Honorary General Secretary and the Coadjutor Secretary, c/o. Queensland Branch, British Medical Association, Adelaide Street, Brisbane.

The following is a list of the Honorary Secretaries of the Sections:—

(*i.*) *Medicine*: Dr. Andrew Stewart, Wickham Terrace, Brisbane.
(*ii.*) *Surgery*: Dr. Donald A. Cameron, Wickham Terrace, Brisbane.
(*iii.*) *Obstetrics and Gynæcology*: Dr. Lillian V. Cooper, George Street, Brisbane.
(*iv.*) *Pathology and Bacteriology*: (In place of Dr. A. W. Dean) D. J. V. Duhig, Wickham Terrace, Brisbane, and Dr. A. Breinl, Institute of Tropical Medicine, Townsville.
(*v.*) *Public Health*: Dr. J. S. C. Elkington, Federal Quarantine Department, Brisbane.
(*vi.*) *Ophthalmology*: Dr. J. Lockhart Gibson, Wickham Terrace, Brisbane.
(*vii.*) *Otology, Rhinology and Laryngology*: Dr. W. N. Robertson, Wickham Terrace, Brisbane.
(*viii.*) *Diseases of Children*: Dr. A. Jefferis Turner, Wickham Terrace, Brisbane.
(*ix.*) *Naval and Military Medicine and Surgery*: Dr. G. P. Dixon, C.B.E., Wickham Terrace, Brisbane.
(*x.*) *Neurology and Psychological Medicine*: Dr. T. H. R. Mathewson, Brunswick Street, New Farm, Brisbane, and Dr. J. R. Nicoll, Hospital for Insane, Toowoomba.
(*xi.*) *Dermatology and Radiology*: Dr. V. McDowall, Preston House, Queen Street, Brisbane.

Members are particularly requested to announce their intention to read papers to the Sectional Secretaries concerned and not to the State Secretaries. The papers should also be forwarded to the Sectional Secretaries.

Section of Medicine.

The Secretary of the Section of Medicine announces that the third subject for discussion in this Section has been altered to "Thyro-Toxic and Analogous Types of Diseases of the Ductless Glands."

Section of Surgery.

The Secretary of the Section of Surgery requests members to return the collective investigation circulars, with the replies embodied, as soon as possible. The latest date on which these replies can be received is July 23, 1920.

Combined Sessions.

The following combined sessional meetings have been arranged:—

Section of Medicine—
(*i.*) With *Section of Surgery*: "Problems in Surgical Treatment of Stomach and Duodenal Ulcer."
(*ii.*) With *Section of Gynæcology and Obstetrics*: "Thyro-Toxic and Analogous Types of Diseases of the Ductless Glands."
(*iii.*) With *Sections of Ophthalmology and Neurology*: "Papillœdema, with Reference to Treatment."

Section of Surgery—
(*i.*) With *Section of Medicine*: See above.
(*ii.*) With *Section of Naval and Military Medicine and Surgery*:
(*a*) "Injury to Nerves and Results of Operative Treatment."
(*b*) "Fractures and the Treatment of the Disabilities Resulting from Extensive Loss of Bone."
(*c*) "The Factors of Success in Tendon Transplantation."

Section of Obstetrics and Gynæcology—
(*i.*) With *Section of Medicine*: See above.

Section of Ophthalmology—
(*i.*) With *Sections of Medicine and Neurology*: "Papillœdema, with Reference to Treatment."
(*ii.*) With *Section of Otology, Rhinology and Laryngology*: "Sinus Disease in its Relation to the Eye."

Section of Otology, Rhinology and Laryngology—
(*i.*) With *Section of Ophthalmology*: See above.

Section of Neurology—
(*i.*) With *Sections of Medicine and Ophthalmology*: See above.
(*ii.*) With *Section of Medicine* (not definitely arranged): "Disordered Action of the Heart."

Section of Dermatology and Radiology—
(*i.*) With *Section of Naval and Military Medicine and Surgery*: "War X-Ray Photographs."
(*ii.*) With *Section of Pathology and Bacteriology*: "The Diagnosis of Venereal Disease."

Section of Pathology and Bacteriology—
(*i.*) With *Section of Dermatology and Radiology*: See above.

Members are reminded that the work of the several Sections will not be limited to the subjects chosen for special discussion. The Secretaries of the Sections will be pleased to receive notice from members who are prepared to contribute papers dealing with original observations.

THE HEALTH OF NEW SOUTH WALES.

(Continued from page 543.)

Infective Disease.

It is recorded that the number of cases of enteric fever notified during the year was smaller than that of any year since the introduction of notification. The fact certainly calls for notice, although it must be admitted that 810 infections in a single year among a population of under 2,000,000 is unwarrantably high. There were 112 deaths, which is equivalent to a case mortality of 13.82%. Between the year 1898 and 1915 the number of cases of enteric fever has varied from about 2,000 to just under 5,000. The highest incidence was in 1903 and the lowest in 1911. In 1916 the figure fell to 1,743; in 1917 it fell still further to 1,091. It is not improbable that the decrease may be due to some

extent to the compulsory inoculation of the members of the Australian Imperial Force and to a small extent to the voluntary inoculation of persons in civil life.

There were 1,308 cases of scarlet fever, with 15 deaths. Scarlet fever appears in definite epidemics and consequently the numbers of cases notified are subject to wide variation. In 1912 there were 662 cases; in 1900 there were 895; in 1915 there were 8,335; in 1898 there were 6,342. It thus appears that the relatively low figure for 1918 has but small significance. A very different story may be read into the figures in connexion with diphtheria. The number of cases notified during the year 1918 was 5,151. The number of deaths was 221, which gives a case mortality of 4.29%. In 1898 1,493 cases were notified. During the following four years less than 1,000 cases were notified each year. Then came a series of five years with an average of 1,302 per annum. From 1908 onwards the figures rose rapidly to about 6,000, so that the number notified in 1918 probably represents one of those curious remissions in the high section of the curve. It is not unlikely that during the epidemic of influenza many practitioners became somewhat lax in reporting cases. A comparison of the curve of monthly incidence for 1917 and 1918 shows that in the latter year the highest point was actually higher than in the former year and that there was a much steeper fall throughout the influenza epidemic period in 1918 than in 1917.

In 1916 a considerable epidemic of cerebro-spinal meningitis broke out among the troops in camp throughout the Commonwealth. In New South Wales the total number of cases notified to the civil health authority was 309, of which 145 were fatal. In the following year 197 cases were notified, with 98 deaths, while in the year under review there were 120 cases, with 80 deaths. Whether the diminution is as great as appears from the figures or not, is difficult to decide. It is, however, significant that the number of cases notified within the areas of the municipalities other than those contained in the Metropolitan and Hunter River Combined Sanitary Districts, was 22, while the number of deaths in the same areas was 25. The year 1916 appears to have been one of epidemics. There were 311 cases of poliomyelitis notified in that year. In 1917 only 16 cases were notified, while in 1918 50 cases of poliomyelitis were notified, with 12 deaths.

The possibility of malaria becoming endemic in New South Wales is proved by the figures for the four years since 1915. It is probable that the great majority of the notified cases were in soldiers returned from Palestine and other countries known to be heavily infected. The figures for these four years are 105, 61, 17 and 11 respectively. Even the smallest number represents a menace which should be dealt with energetically.

It will be remembered that tuberculosis was notifiable only in the city of Sydney from 1904 to 1915, that in 1915 it was notifiable also in the Hunter River District and that since 1916 it has been notifiable in addition in the Blue Mountain Shire and Katoomba Municipality. For statistical purposes, therefore, the notifications for this disease are of small value. There were 1,304 cases notified, of which 1,091 were notified in the Metropolitan Combined District. This represents an incidence of 137 per 100,000 of population. There were 507 deaths in the metropolitan area, which is equivalent to a mortality of nearly 64 per 100,000. The Director-General devotes a few paragraphs to the subject of tuberculosis. The details concerning the Waterfall Sanatorium will be dealt with under a separate heading. He points out that the "Board of Health had under consideration the question of granting invalid pensions to advanced consumptives, with a view to some steps being taken to induce such pensioners to enter a sanatorium or other suitable home, where they could receive proper treatment." The Director-General considers that institutional treatment is desirable in the interests of the whole community. The attitude of the authorities in regard to devastating infective diseases is not logical. No hesitation is felt in removing a patient without asking his consent in the case of infection with plague, cholera, smallpox, diphtheria, etc.. On the other hand, the feelings of the patients are studied when the infection is either a tubercular one or a venereal one. It has long been recognized that the stamping out of tuberculosis would be possible, if a sufficient amount of money were expended and if sufficiently drastic measures were adopted. In New South Wales the disease has been notifiable in certain districts only for a period of 16 years. It thus appears that the information necessary for the institution of a serious attempt to grapple a very difficult problem is not available. The granting of pensions to persons suffering from pulmonary tuberculosis in its advanced stages would be a wise measure, provided that this relief were extended only to those whose financial position justified it. We do not believe, however, that the payment of a pension would represent a powerful incentive in regard to the proper isolation of these infected persons. The education of the public may result in a diminution of the danger of these persons to the community, but nothing short of compulsory isolation can remove this danger.

The Director-General refers to the action taken in placing members of the Australian Imperial Force who were found to be suffering from tuberculosis under control and treatment. In the last place, the Director-General announces that suitable arrangements had been made with the Railway Commissioners for the conveyance of patients from their homes to a sanatorium without menace to the travelling public. As long as consumptives are allowed to walk about our crowded cities and to expectorate at their heart's content, the reserving of railway compartments for persons in the early stages of disease and the disinfection of these compartments after use cannot be expected to be of considerable avail in limiting infection.

In September and October of 1918 reports were received from England, South Africa and New Zealand concerning the serious nature of the influenza outbreak. The Director-General sums up the action taken by the Federal Quarantine authority in the following sentence: "Up till the end of the year no case occurred in Australia, although numerous patients from infected ships were detained in quarantine stations at different ports, but principally at Sydney."

Certain arrangements were made in the State in anticipation of an outbreak. The Coast Hospital was cleared for the reception of patients, while preparations were made for the accommodation of a considerable number of patients at La Perouse, at Eastwood and Rose Bay and at the Greycliffe Babies' Hospital. In addition, a large skating rink was selected for use as an emergency hospital. In was anticipated that the public schools would be closed and plans were prepared for the alterations of the buildings, to adapt them to hospital purposes. Endeavours were made to secure a sufficient supply of beds and bedding and to extend the ambulance service. Steam sprays were installed at the Health Department and at the buildings of the Water Police Court. Business firms were asked to supply masks to the public at cost price. Material was obtained from influenza patients at the Quarantine Station for the purpose of preparing vaccine on a large scale. The Microbiological Department proceeded with the preparation of this vaccine and issued it to medical practitioners free of charge. Public inoculation depôts were opened and no less than 30,000 persons were inoculated up to the end of 1918.

The New South Wales Branch of the British Medical Association were invited to appoint a Committee to be called The Consultative Council "to assist the Department in controlling the disease, in the event of necessity arising." A conference of representatives from the various States was held at the instigation of the Federal Government. "Certain important decisions were arrived at in regard to inter-State action." The disease was proclaimed a notifiable disease under the provisions of the *Public Health Act*. An artificial distinction was made between influenza and "pneumonic influenza," by which we presume is meant influenza complicated by pulmonary lesions. Only the latter was notifiable.

In addition to the steps taken with a view to secure uniformity of action in the several municipalities, the New South Wales Branch of the British Medical Association was asked to organize a service of practitioners to render assistance in the different districts of the State. Leaflets were distributed concerning the establishment of inoculation depôts, the symptoms of "pneumonic influenza," the uses of gauze masks and the measures of prevention and cure of the disease.

Hospitals.

The Director-General of Public Health has the control of the State hospitals. In addition, the Hospital Admission

Depôt is attached to his Department and the hospitals in receipt of Governmental subsidy are required to submit to a certain amount of administrative supervision. During the year, 1918 the policy was instituted of requiring country hospitals in receipt of subsidy to provide a room for the reception and treatment of persons suffering from acute mental disease, pending their removal to a hospital for the insane or discharge. The Director-General also refers to the practice of country hospitals in referring those patients who seek treatment for venereal diseases, to the metropolitan hospitals. He finds that, provided precautions are taken for the proper disinfection of the utensils, etc., used by these patients, there is no reason why they should not be admitted to the general wards of the country hospitals. He therefore informed the committees of these hospitals that they should admit these patients to their institutions. The question of the provision of accommodation for patients requiring indoor treatment for venereal disease is not a simple one. Since five of the six States of Australia have adopted legislation compelling persons infected with venereal diseases to submit to treatment by a registered medical practitioner, the duty rests with the Governments of the States to provide suitable places for this treatment. The excuse is made in several of the States that sufficient money is not available to make adequate provision. This excuse is not valid. The obligation exists and cannot be evaded. In New South Wales the responsible authority is seeking to avoid the necessity of making this provision by postponing the date on which the Act shall become operative. The advice given to the country hospitals is therefore not offered to meet the obligation of the Government of New South Wales, but to overcome a real difficulty felt in all country districts. Theoretically, everyone must agree with Dr. Paton that there should be no risk to other patients of a transfer of infection, provided that adequate precautions are taken. But in practice the margin of safety will be found to be small. An error of judgement, a little want of knowledge on the part of a nurse, an accident or the hurry of an unusually busy day may result in an innocent person becoming infected with a loathsome disease. In a well-managed, large general hospital the risk would probably be less than in a small country institution, but even under the most favourable conditions it cannot be altogether removed. In the next place, other patients, especially females, would be justified in objecting to the admission of a person suffering from a venereal infection to an adjoining bed. We recognize that the alternative is unsatisfactory. The only safe way out of the difficulty is the proper provision of isolated accommodation for persons affected with these diseases.

In June, 1918, an advisory board was instituted and Dr. R. T. Paton, Dr. W. G. Armstrong, Dr. Richard Arthur, M.L.A., Dr. G. H. Taylor and Mr. E. B. Harkness were appointed the members.

(To be continued.)

Our attention has been called to some confusion of persons which has arisen in New South Wales. Dr. John McPherson, formerly of Bulli, has started practice recently at Granville, Sydney. The spelling of his name, it will be noticed, differs from that of Dr. John MacPherson, of Macquarie Street, Sydney, who has been practising in New South Wales since 1898.

Proceedings of the Australian Medical Boards.

NEW SOUTH WALES.

The undermentioned have been registered under the provisions of the *Medical Act, 1912 and 1915*, as duly qualified medical practitioners:—

Beveridge, Lorna Durie, M.B., Mast. Surg., 1920, Univ. Sydney.

Brooks, Edward James, M.B., Mast. Surg., 1920, Univ. Sydney (St. Vincent's Hospital).

Broome, John Rogers, M.B., Mast. Surg., 1920, Univ. Sydney (Royal South Sydney Hospital).

Cutler, Harry Macgregor, M.B., Mast. Surg., 1920, Univ. Sydney.

Freidman, Eric Hyam, M.B., Mast. Surg., 1920, Univ. Sydney (St. George's Cottage Hospital, Kogarah).

Goddard, Gerald Windett, M.B., Mast. Surg., 1920, Univ. Sydney (Royal Alexandra Hospital for Children).

Gregg, Norman McAlister, M.B., Mast. Surg., 1915, Univ. Sydney.

Grieve, Herbert Ronald Robinson, M.B., Mast. Surg., 1920, Univ. Sydney (Artarmon Road, Artarmon).

Gunn, Michael Beresford, Lic. *et* Lic. Mid R.C.P., Irel., 1917; Lic. *et* Lic. Mid. R.C.S., Irel., 1917 (Randwick).

Hansmann, Frank Solomon, M.B., Mast. Surg., 1920, Univ. Sydney (Royal Prince Alfred Hospital).

Harvey, William Cotter Burnell, M.B., Mast. Surg., 1920, Univ. Sydney (Royal Prince Alfred Hospital).

Hughes, John, M.B., Mast. Surg., 1920, Univ. Sydney (St. Vincent's Hospital).

Hunter, John Irvine, M.B., Mast. Surg., 1920, Univ. Sydney (Wellsley College, Sydney University).

Ick, Edwin Theophilus Jesse, M.B., 1898; Bac. Surg., 1899, Univ. Melbourne (now Ick-Hewins, Edwin Theophilus Jesse), Dunedoo.

Knox, David Neilson, M.B., Bac. Surg., 1909, Univ. Glasg. (Neutral Bay).

Lee Brown, Robert Kingsbury, M.B., Mast. Surg., 1920, Univ. Sydney (Vaucluse).

Lynch, Richard Bartley, M.B., Mast. Surg., 1920, Univ. Sydney (Sydney Hospital).

McClean, James Robert, M.B., 1920, Univ. Sydney (Royal North Shore Hospital).

McLaren, Nicol Ernest, M.B., Mast. Surg., 1920, Univ. Sydney (Longueville).

Maxwell, William Thomas Daly, M.B., Mast. Surg., 1920, Univ. Sydney (Sydney Hospital).

Muston, William Keith, M.B., Mast. Surg., 1920, Univ. Sydney (Royal Prince Alfred Hospital).

Nickson, Wilfrid Lievesley, M.B., Mast. Surg., 1920, Univ. Sydney (Royal Prince Alfred Hospital).

O'Reilly, Philip Michael, M.B., Mast. Surg., 1920, Univ. Sydney.

Paine, Clive Lansdell, M.B., Mast. Surg., Univ. Sydney (Royal Prince Alfred Hospital).

Paradice, William Edward John, M.B., Mast. Surg., 1920, Univ. Sydney (Chatswood).

Parr, Leslie James Albert, M.B., Mast. Surg., 1920, Univ. Sydney (Sydney Hospital).

Porter, Hubert Keith, M.B., Mast. Surg., 1920, Univ. Sydney (Sydney Hospital).

Prott, Howard Andrew, M.B., Mast. Surg., 1920, Univ. Sydney (Kogarah).

Scougall, Stuart Hammond M.B., 1920, Univ. Sydney (Royal North Shore Hospital).

Sherwood, James Ewen, M.B., Mast. Surg., 1920, Univ. Sydney (Sydney Hospital).

Smith, Charles Robert, M.B., Mast. Surg., 1920, Univ. Sydney (Royal North Shore Hospital).

Smith, Edna Lillian, M.B., Mast. Surg., 1920, Univ. Sydney (Sydney Hospital).

Smith, Norman Ross, M.B., Mast. Surg., 1920, Univ. Sydney (Royal Prince Alfred Hospital).

Stevenson, Beaumaris William, M.B., Mast. Surg., 1920, Univ. Sydney (William Street, Randwick).

Sutton, Harvey, M.B., 1902; Bac. Surg., 1903; M.D., 1905, Univ. Melb. (Department of Public Instruction, Sydney).

Tillett, Paul, M.B., Mast. Surg., 1920, Univ. Sydney (care of Crown Solicitor's Office, Sydney).

Traill, Roy Cadell, M.B., Mast. Surg., 1920, Univ. Sydney (Royal Prince Alfred Hospital).

Vivian, Alfred Ernest, M.B., Mast. Surg., 1920, Univ. Sydney (Kalgoorlie Hospital, W.A.).

Walker, George Christopher, M.B., Mast. Surg., 1920, Univ. Sydney (Carr Street, Coogee).

Ward, William Herbert, M.B., 1920, Univ. Sydney (Royal South Sydney Hospital).

White, Gavin Bruce, M.B., Mast. Surg., 1920, Univ. Sydney (Royal Prince Alfred Hospital).

Whittle, Harry Clarendon, M.B., Mast. Surg., 1920, Univ. Sydney (Quirindi).

Additional Registration:—
Holmes à Court, Alan Worsley, M.D., 1920, Univ. Sydney; M.R.C.P., Lond., 1919 (211 Macquarie Street, Sydney).
Morris, Emanuel Sydney, D.P.H., 1920, Univ. Sydney (Department of Public Health, Tasmania).
Parker, Keith Shelley, F.R.C.S., Edin., 1919 (Manly).

Medical Appointments.

Dr. Arthur Curtis (B.M.A.) is taking the place of Dr. P. Shaw (B.M.A.) as Superintendent of the Hospital for the Insane, Ballaarat, and of the Receiving House, Ballaarat, Victoria, during the temporary absence of the latter.

It has been announced in the *New South Wales Government Gazette*, No. 102, of May 28, 1920, that Professor J. T. Wilson has been nominated to succeed the late Professor Sir Thomas Anderson Stuart as a member of the Board of Control of the United Dental Hospital of Sydney.

Dr. John Patrick Farrell has been appointed Commonwealth Medical Inspector of Shipping for the port of Townsville. This appointment is for the purposes of the *Navigation Act, 1912-1919*.

Dr. N. A. Trenow (B.M.A.) has been appointed Acting Quarantine Officer at Bowen, Queensland.

Dr. F. Tooth (B.M.A.) has been appointed Quarantine Officer at Sydney.

Dr. Arthur J. M. Fargie (B.M.A.) has been appointed Public Vaccinator at Boort, Victoria.

Dr. W. A. Graham (B.M.A.) has been appointed Public Vaccinator at Rushworth, Victoria.

Dr. Charles H. Lloyd (B.M.A.) has been appointed Medical Officer at Inglewood, Queensland.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xxvii.

Broken Hill and District Hospital: Senior and Junior House Surgeons.

Department of Public Instruction, New South Wales, School Medical Officer (Male).

Medical Appointments.

IMPORTANT NOTICE.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London, W.C.

Branch.	APPOINTMENTS.
VICTORIA. (Hon. Sec., Medical Society Hall, East Melbourne.)	All Friendly Society Lodges (other than the Grand United Order of Oddfellows and the Melbourne Tramways Mutual Benefit Society), Institutes, Medical Dispensaries and other Contract Practice. Australian Prudential Association Proprietary, Limited. Mutual National Provident Club. National Provident Association.
QUEENSLAND. (Hon. Sec., B.M.A. Building, Adelaide Street, Brisbane.)	Australian Natives' Association. Brisbane United Friendly Society Institute. Cloncurry Hospital. Stannary Hills Hospital.
SOUTH AUSTRALIA. (Hon. Sec., 3 North Terrace, Adelaide.)	Contract Practice Appointments at Renmark. Contract Practice Appointments in South Australia.
WESTERN AUSTRALIA. (Hon. Sec., 6 Bank of New South Wales Chambers, St. George's Terrace, Perth.)	All Contract Practice Appointments in Western Australia.
NEW SOUTH WALES. (Hon. Sec., 30.-34 Elizabeth Street, Sydney.)	Australian Natives' Association. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham Dispensary. Manchester Unity Oddfellows' Medical Institute, Elizabeth Street, Sydney. Marrickville United Friendly Societies' Dispensary. North Sydney United Friendly Societies. People's Prudential Benefit Society. Phœnix Mutual Provident Society.
NEW ZEALAND: WELLINGTON DIVISION. (Hon. Sec., Wellington.)	Friendly Society Lodges, Wellington, New Zealand.

Diary for the Month.

June 15.—N.S.W. Branch, B.M.A., Executive and Finance Committee.
June 16.—W. Aust. Branch, B.M.A..
June 22.—N.S.W. Branch, B.M.A., Medical Politics Committee; Organization and Science Committee.
June 24.—S. Aust. Branch, B.M.A..
June 24.—Q. Branch, B.M.A., Council.
June 25.—N.S.W. Branch, B.M.A..
June 30.—Vic. Branch, B.M.A..
July 2.—Q. Branch, B.M.A..
July 6.—N.S.W. Branch, B.M.A., Council (Quarterly).
July 7.—Vic. Branch, B.M.A..
July 8.—Q. Branch, B.M.A., Council.
July 9.—N.S.W. Branch, Clinical.
July 13.—N.S.W. Branch, B.M.A., Ethics Committee.
July 13.—W. Aust. Branch, BM.A..
July 15.—Vic. Branch, B.M.A., Council.
July 16.—Eastern Suburbs Med. Assoc. (N.S.W.).

EDITORIAL NOTICES.

Manuscripts forwarded to the office of this journal cannot under any circumstances be returned.

Original articles forwarded for publication are understood to be offered to *The Medical Journal of Australia* alone, unless the contrary be stated.

All communications should be addressed to "The Editor," *The Medical Journal of Australia*, B.M.A. Building, 30-34 Elizabeth Street, Sydney. (Telephone: City 2645.)

We are seeking copies of our issues of February 14 and 28, 1920. There has been an unusual demand on our stock, which is now depleted. Members who do not keep *The Medical Journal of Australia* for binding, are requested to send us their copies, on receipt of which the usual payment of the face value will be made.

Australasian Medical Congress.

ELEVENTH SESSION, BRISBANE, 1920.

AUGUST 23 TO 28, 1920.

Opening.

It is hoped that the Governor-General will be able to be present and open the proceedings.

Location.

By the kind permission of the Senate, the whole of the University buildings have been secured for Congress. The buildings are conveniently situated, within five minutes' walk from the centre of the city, and are well adapted, both for plenary and sectional meetings.

Sectional Meetings.

Sectional work will, as usual, be the chief feature of the scientific business of Congress. The Sectional Secretaries are very desirous of hearing, as soon as possible, from any who propose to bring forward papers or subjects for discussion in their respective Sections. In order to make arrangements for lantern demonstrations, members wishing to make use of such should notify the Sectional Secretary concerned as early as possible; the facilities offered in this connexion are excellent.

Tropical Australia.

In accordance with the resolution of Congress held in Sydney in 1911, *viz.*:—

> That it be a recommendation to Congress that the permanent settlement of a working white race in tropical Australia be adopted as the principal subject for discussion at the Brisbane Congress when held,

arrangements have been made for the discussion by full Congress of this subject.

Naval and Military Section.

Endeavour is being made to make this section a feature of Congress, both as regards the scientific work and from the point of view of social reunion. This gathering represents the first opportunity for a general reunion since the war and is, in addition, the last which is likely to occur for some years at least. It is confidently hoped that the opportunity will be taken by as many as possible, in view of the facilities offered for the discussion of matters affecting the common interests of returned medical officers. The Returned Medical Officers' Association of Queensland is arranging a dinner.

Future of Congress.

An important business of Congress will be the decision regarding future meetings. The President has decided that the methods adopted shall be a ballot before the final meeting. The arrangements include the forwarding of a ballot to each member upon receipt of his subscription. Scrutineers will be appointed at the first business meeting on August 23 and the ballot will close on Friday, August 27; the result will be declared at the final business meeting on August 28. Should it be decided that Congress, as at present constituted, be abolished, the Federal Committee of the British Medical Association has notified its intention to bring forward certain proposals.

Concessions.

Shipping.—In spite of persistent endeavours, no concessions could be obtained.

Railways.—For all States, except Tasmania and Queensland, the fare is reduced to two-thirds of the ordinary rate; for Tasmania and Queensland the concession is half the ordinary single fare. No return tickets are issued, but the same concessions obtain for the return journey. This is applicable to members of Congress and their wives only and at least six members must travel from each State. Members must procure, from their State Secretary an official form in order to obtain these concessions. The tickets will be issued so as to enable members to arrive at Brisbane not more than three days before the commencement of the Congress and to begin the return journey on any date within one calendar month from the date of the issue of the concession ticket for the forward journey, the privilege of breaking the journey being granted only if there be an intervening capital city and then only for one day. Endeavour is being made to obtain some relaxation of this regulation. Members will greatly oblige if they will notify, through their State Secretary, the exact date of their arrival, so that arrangements can be made for meeting them, etc..

Accommodation.

Owing to the visit of the Prince and the date of the Annual Show, great difficulty was experienced in arranging accommodation. The situation has eased, as Congress will now be separated by two clear weeks from these events. First-class accommodation is assured to all members.

Dress.

The average temperature in Brisbane during August is 59° F.. At the opening ceremony gowns should be worn, if possible. For the naval and military dinner it has been arranged that uniform or evening dress with miniatures may be worn.

Sports.

The Brisbane Golf Club, the Lawn Tennis Association, the Bowling Clubs and the Queensland Turf Club will make visitors honorary members during their stay.

Entertainments and Excursions.

An attractive programme has been arranged, full details of which will be handed to each member on arrival. In addition to the official entertainments, in conjunction with the Government Tourist Bureau trips have been arranged to some of the places of scenic interest for the week following Congress.

Publication of Proceedings.

The Government of Queensland has kindly undertaken the printing of the *Transactions*.

Subscriptions.

The subscription of two guineas for Queensland members and one guinea for members from other States will entitle every member to a copy of the *Transactions* in book form.

Membership.

Practitioners who intend to become members of Congress are requested to send in their names to the State Secretary as early as possible and their requirements for accommodation, to enable the Committee to make suitable arrangements for the latter and to estimate the numbers for the Entertainments Committee.

(Tear off slip.)

(For use of intending members who have not already enrolled.)

AUSTRALASIAN MEDICAL CONGRESS.

ELEVENTH SESSION.

I wish to become a member of the Eleventh Session of the Australasian Medical Congress, to be held in Brisbane in August, 1920.

I intend to be present at Congress and shall be accompanied by.....

I wish accommodation arranged for me as follows.....

.....

I enclose my subscription of.....

Signature.....

Qualifications, etc.....

Address.....

To the State Secretary for.....

AUSTRALASIAN MEDICAL CONGRESS, 1920.

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F. Antill Pockley, M.D. (Edin.), M.D. (Syd.), M.R.C.S. (Eng.), President, Sydney Congress, 1911.

Arthur Challinor Purchas, M.B., C.M. (Edin.), M.R.C.S. (Eng.), President, Auckland Congress, 1914.

Surgeon-Captain Edward T. P. Eames, Director of Naval Medical Services.

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